

167
P.V.
467281
S.C.

Vol. II

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1941

No. 706

**CITY OF CHICAGO, A MUNICIPAL CORPORATION,
BOARD OF HEALTH OF THE CITY OF CHICAGO,
ET AL., PETITIONERS,**

vs.

FIELDCREST DAIRIES, INC.

**ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SEVENTH CIRCUIT**

PETITION FOR CERTIORARI FILED OCTOBER 20, 1941.

CERTIORARI GRANTED NOVEMBER 24, 1941.

IN THE

Supreme Court of the United States

OCTOBER TERM, A. D. 1941.

No.

CITY OF CHICAGO, (A MUNICIPAL CORPORATION), BOARD
OF HEALTH OF THE CITY OF CHICAGO, DR.
ROBERT A. BLACK, HEALTH COMMISSIONER AND ACT-
ING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,

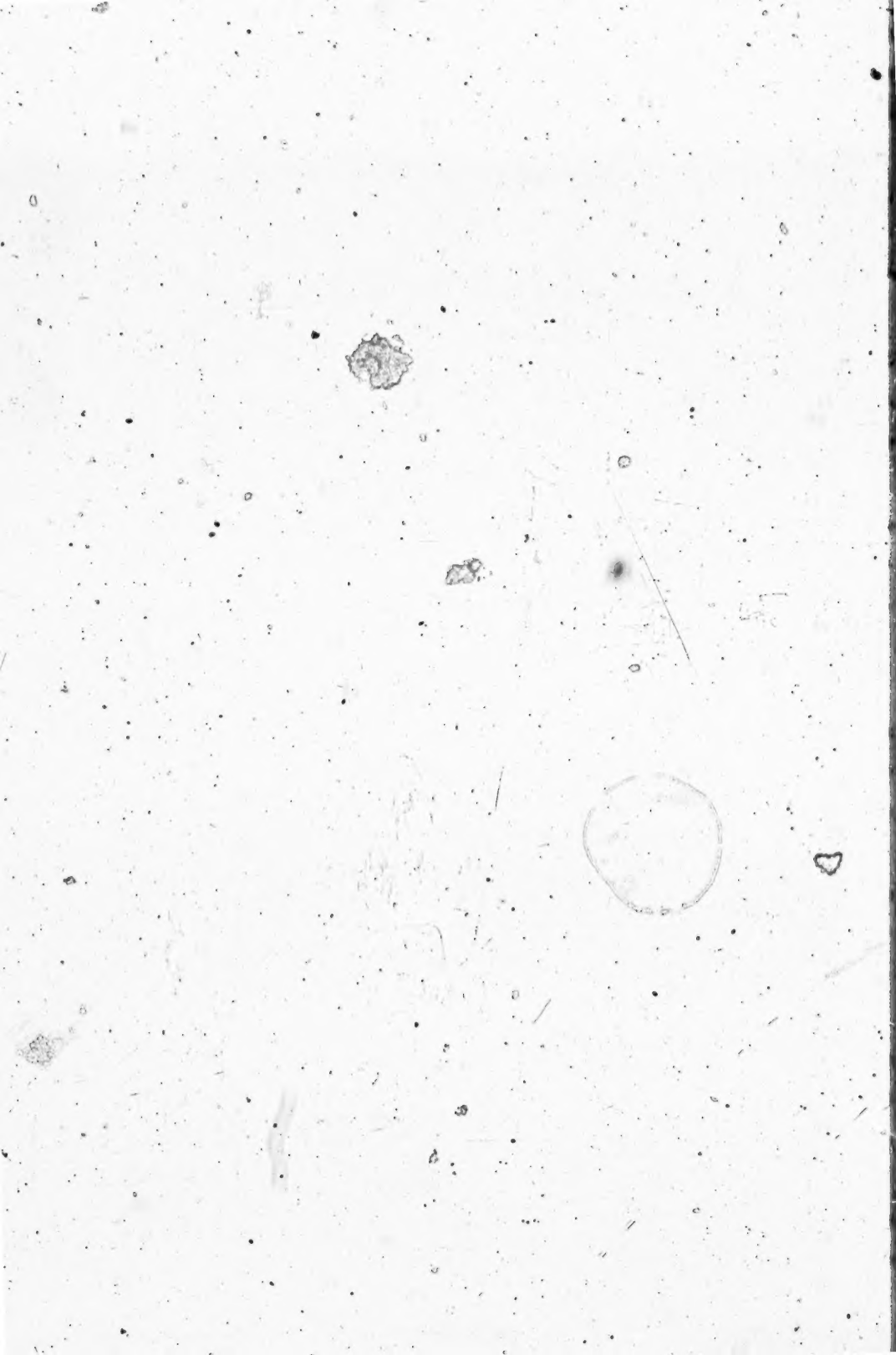
Petitioners,

vs.

FIELDCREST DAIRIES, (INC.),

Respondent.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SEVENTH CIRCUIT.



INDEX.

Index to Printed Record of Proceedings in U. S.

District Court	i
Clerk's Certificate to Volume 1 of Printed Record.....	608a
Clerk's Certificate to Volume 2 of Printed Record.....	1224a
Clerk's Certificate to Volume 3 of Printed Record.....	1779

Index to Proceedings in U. S. Court of Appeals:

Placita	1781
Opinion by Major, J., filed Aug. 4, 1941.....	1782
Dissent by Lindley, D. J.....	1795
Decree, entered Aug. 4, 1941.....	1797
Order staying Mandate, entered Aug. 23, 1941.....	1798
Designation of Record.....	1799
Clerk's Certificate	1801
Order allowing certiorari	1801

VOL. II pp. 609 to 1224.

TRANSCRIPT OF RECORD

IN THE
United States Circuit Court of Appeals
For the Seventh Circuit

No. 7502

FIELDCREST DAIRIES, (INC.),
Plaintiff-Appellee,

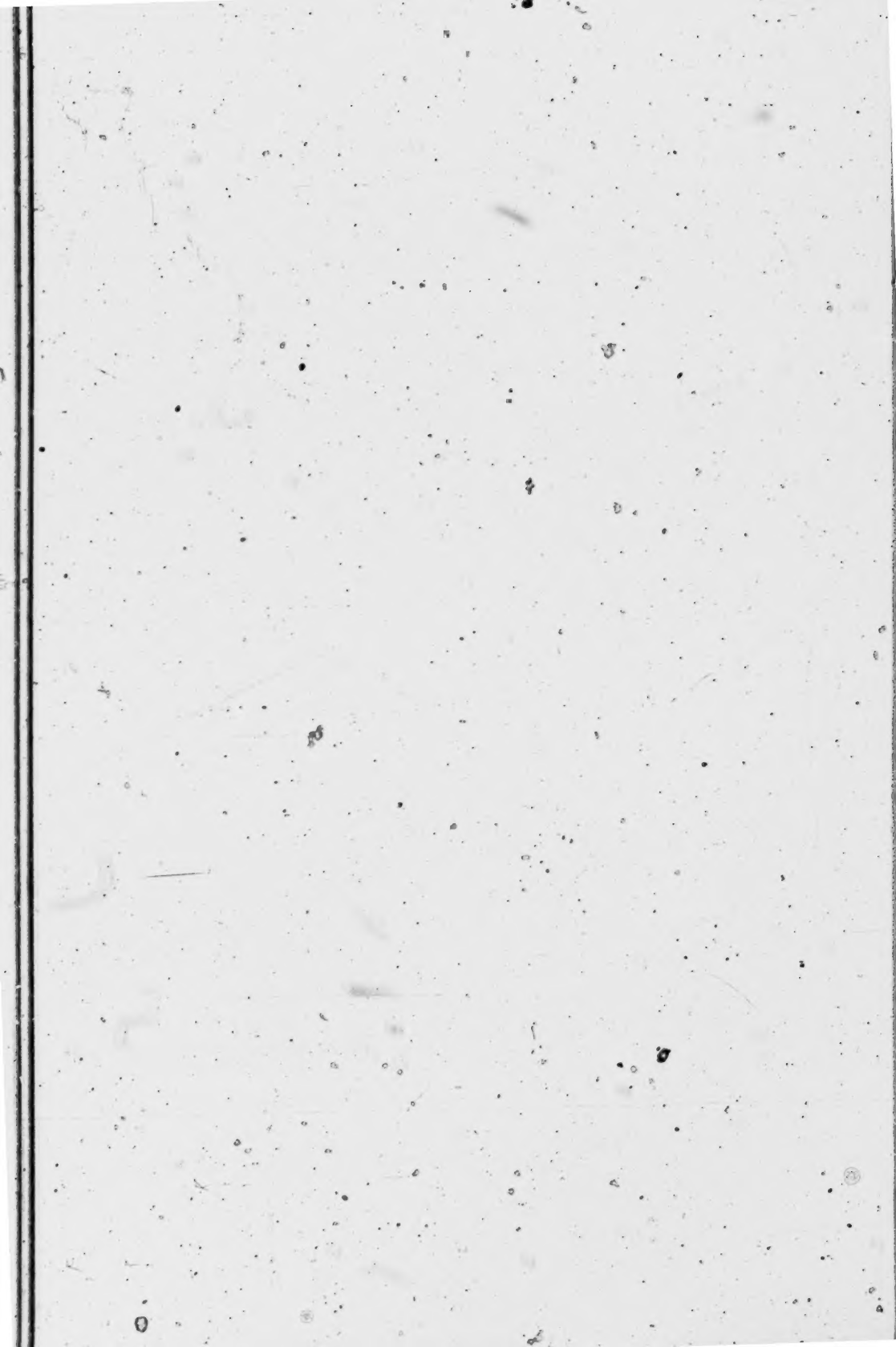
vs.

CITY OF CHICAGO, (A MUNICIPAL CORPORATION),
BOARD OF HEALTH OF THE CITY OF CHICAGO,
DR. ROBERT A. BLACK, HEALTH COMMISSIONER AND
ACTING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,

Defendants-Appellants.

Appeal from the District Court of the United States for
the Northern District of Illinois, Eastern Division.

TRANSCRIPT OF RECORD FILED JAN. 20, 1941.



IN THE
United States Circuit Court of Appeals
For the Seventh Circuit

No. 7502

FIELDCREST DAIRIES, (INC.),
Plaintiff-Appellee,
vs.

CITY OF CHICAGO, (A MUNICIPAL CORPORATION),
BOARD OF HEALTH OF THE CITY OF CHICAGO;
DR. ROBERT A. BLACK, HEALTH COMMISSIONER AND
ACTING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,

Defendants-Appellants.

Appeal from the District Court of the United States for
the Northern District of Illinois, Eastern Division.



INDEX.

Placita	1
Complaint filed February 2, 1939	2
Answer filed February 27, 1939.....	16
Exhibit A—Reprint of the Mayor Kelly Milk Ordinance passed by City Council January 4, 1935, etc.	23
Order referring cause to Master, entered May 12, 1939	123
Notice as to stipulation, filed May 25, 1939.....	124
Order approving stipulation, entered May 25, 1939...	125
Stipulation as to experiments, etc.	125
Stipulation regarding tests requested by City of Chicago pursuant to stipulation filed June 29, 1939....	127
Order approving stipulation with respect to tests, entered June 29, 1939.....	131

TRANSCRIPT OF TESTIMONY.

Statement by Mr. Schaefer.....	132
Statement by Mr. Gariepy.....	135
Colloquy. 137, 155; 226, 373, 687, 849, 854, 880, 893, 1231, 1271	

PLAINTIFF'S WITNESSES.

Arnold, Lloyd	610, 1245
Bergman, Frank H.	939
Bunta, Andrew	857, 891
Carpenter, A. E. (deposition of).....	1385
Davis, David J.	1243
Dean, S. E. Jr.	840, 888, 938, 960
Faust, E. R.	862
Fisher, Harry C.	306, 534

Huber, Philip	877
Johnston, Florence (deposition of)	1379
Kasper, Charles J.	360, 372
Keyser, Paul V., Jr. (deposition of)	1334
King, Bruce	861, 897
Koller, Margaret M.	440
Martinek, Matthew J.	1248
McNally, William D.	1251, 1276
Orvis, Howard	567
Packer, Herbert M. (deposition of)	1355
Peterson, Howard R.	942, 966
Pracha, Martin John	624, 700
Sanborn, John Raymond	144
Scott, George D.	612
Stern, Mortimer E.	364
Taylor, Clinton L.	546, 607
Tonney, Fred O.	898
Tracy, Paul Hubert	471
Vaughan, R. T.	1302
White, John L.	847
Woodman, M. J.	672
Yunker, Elkan H. (deposition of)	1377
Stipulation	689

MASTER'S WITNESS.

Rice, John W.	378
--------------------	-----

DEPENDANT'S WITNESSES.

Arnold, Lloyd	1061
Black, Robert A.	1225
Bundesen, Herman N.	1206
Dulak, Francis A.	1230
Krueger, Paul F.	968

Martinek, Matthew J.	1001
Renter, Ernest	1032
Reynolds, Harry J.	1237
Rudig, Delmar M.	1045
Tonney, Fred O.	1001
Report of Conference with Master	1307
Report of Discussion with Master	1328

PLAINTIFF'S EXHIBITS.

No. 4—Report of Dr. Arnold, Dec. 4, 1937, etc.	1397
No. 5—Letter Nov. 27, 1936—Packer to Silver Seal Dairy Products Co.	1471
No. 6—Letter Nov. 28, 1936—Sullivan to Fuller	1471
No. 7—Letter Nov. 30, 1936—Foote to Fuller	1472
No. 8—Letter Dec. 1, 1936—Moffett to Silver Seal Dairy Products Co.	1473
No. 10—Letter Dec. 2, 1936—Grim to Silver Seal Dairy	1474
No. 11—Letter Jan. 5, 1937—Williams to Fuller	1474
No. 12—Article "Sanitation of Paper Milk Con- tainers"	1477
No. 13—Photograph of pint glass milk bottles and tumblers	1493
No. 14—Photograph of quart glass milk bottles	1495
No. 15A—Photographs from advertising literature of Ex-cell-O Corporation	1498
No. 16—Article "Single Service Containers for Milk and Milk Products"	1503
No. 17—Article "Reasonable Sanitary Standards for Paper Products"	1507
No. 18—Article "When are Milk Containers and Equip- ment Clean and Sterile"	1514
No. 19—Report of second conference on Sanitation of Paper Milk Containers, Etc.	1518

Article "Paper Containers for Milk; Principles of Sanitation to be observed in their Manufacture and Use".....	1525
No. 21—Article "Proposed Standards for Paper Milk Containers"	1534
No. 22—Article "Sanitary Problems in Connection with Paper Containers for Milk".....	1540
No. 23—Letter Feb. 18, 1939—Sanborn to Ewing....	1545
No. 24—List of cities using paper milk containers, dated Nov. 14, 1938.....	1546
No. 25—Letter Nov. 14, 1938—Sanborn to Dwyer....	1548
No. 23—Photograph of printing press feed—Gardner-Richardson Co.	1549
No. 34—Photograph of carton blanks ready for gluing before capping.....	1551
No. 35—Photograph of carton blanks ready for shipping	1553
No. 36—Photograph of blank ready for gluing, capped.	1555
No. 37—Photograph of carton blanks printed and ready for cutting	1557
No. 38—Photograph of finished cartons in flat form packed for shipment	1559
No. 39—Sheets headed "Samples of Milk Bottle Cartons," tests by Harry C. Fisher.....	1561
No. 42—Photograph — Model "C" — Soaker Bottle Washer	1563
No. 44—Photograph of paper bottle and glass bottle filled with milk at 15 degrees below zero.....	1565
No. 45—Letter June 23, 1939—Hoffman to Garipey..	1567
No. 46—"Study on Self-Purification of Paper".....	1572
No. 47—"Bacterial Condition of Pure-Pak Containers"	1573
No. 47A—"Bacterial Condition of Pure-Pak Paraffined Container as revealed by Four Different Methods"	1574

No. 48—"Bacterial Condition of washed and sterilized bottles in two plants in Chicago".....	1575
No. 49—"Bacterial Condition of 132 Pure-Pak paraffined containers from eleven different milk plants"	1576
No. 50—"Study on the Bacteriological Condition of the Paraffin Bath in Pure-Pak Machine"....	1576
No. 51—"Bactericidal Property of Paraffining"....	1578
No. 52—"Contamination of Milk by Pure-Pak Machine where practically sterile milk was bottled"....	1579
No. 53—"Number of Bacteria Enmeshed in the Paper used for Dairy Products"	1580
No. 54—"Bacteriological Condition of Paper Milk Containers before being Paraffined".....	1581
No. 55—"Bacterial Contamination of Milk by the pouring lips of Glass Bottles"	1582
No. 56—"Number of Bacteria on and in Paper for Pure-Pak Container Pouring Lip".....	1583
No. 57—"Bacterial Contamination of Milk by the Pouring Lip of Pure-Pak Containers".....	1584
No. 58—"Effect of Paraffining on Bacteria when containers were inoculated before Paraffining"....	1586
No. 59—"Bacterial counts of 50 glass bottles and 50 Pure-Pak Containers"	1587
No. 60—"Bacterial Condition of Adhesives used in Pure-Pak Containers"	1588
No. 61—Letter Sept. 12, 1939, Fuchs to Rall.....	1589
"Public Health Service Sanitation Advisory Board Action on Single-Service Containers, Etc."	1590
No. 62—"Sanitary Aspects of Paper Milk Containers"	1591
No. 63—"Are Paper Milk Containers Sanitary?"...1600	
No. 64—Certificate of Incorporation of Fieldcrest Dairies, Inc.	1609

No. 65—Certificate to do business in Illinois of Fieldcrest Dairies, Inc.	1613
No. 66—Photograph of two trucks containing crated milk bottles	1619
No. 67—Photograph of truck containing milk bottle crates	1621
No. 68—Photograph of truck containing milk bottle crates	1623
No. 69—Photograph of Blue Island Bottle Co. building	1625
No. 70—Photograph of two trucks which crates contain milk bottles	1627
No. 71—Photograph of truck containing milk bottle crates with crated bottles in shed in back-ground	1629
No. 72—Photograph of crate with empty milk bottles etc.	1631
No. 73—Photograph of milk bottle at laboratory with E. R. Faust	1633
No. 74—Photograph of colored man with milk bottle at junk yard 2048 W. Lake Street	1635
No. 75—Photograph of close-up of bottles in front of 2048 W. Lake St.	1637
No. 76—Photograph of empty bottle in Illinois Central yards	1639
No. 77—Photograph of junk yard employees loading empty bottles into a milk bottle crate	1641
No. 78—Photograph of milk bottle at County Morgue.	1643
No. 79—Photograph of push cart man placing empty milk bottle in sack.....	1645
No. 80—Photograph of E. R. Faust in front of filled milk bottle crates in junk yard.....	1647
No. 81—Photograph of man at quarry dump picking up milk bottle.....	1649

No. 83—Letter Dec. 17, 1937, Arnold to Scott.....	1651
No. 84—Letter Arnold to Scott.....	1652
No. 85—Letter Nov. 12, 1937, Fuchs to Dean, Jr....	1656
No. 86—Letter Nov. 26, 1937, Frank to Dean, Jr.	1657
No. 87—Letter Feb. 7, 1938, Arnold to Scott.....	1658
No. 88—"Arnold's suggestions to Board of Health May 15, 1939"	1658
No. 89—Letter Oct. 6, 1939, Dashiell to Bundesen...	1661
No. 92—Letter Sept. 16, 1939, Fuchs to Scott.....	1662

DEFENDANT'S EXHIBITS.

No. 1 and 1B—List of questions by Rall submitted to Carpenter before his deposition, etc.	1663
No. 1A—Index card containing notes of Carpenter..	1664
No. 2—"Microbiology in pulp and paper manufac- ture"	1665
No. 7—"Number of bacteria enmeshed in the body of the paper"	1671
No. 8—Sample receipt stub Board of Health, Bureau of Dairy Products	1672
No. 9—Laboratory card used in bacteriological and chemical examination of milk by Board of Health	1673
No. 10—Tabulation of bacterial content of empty milk bottles examined by Board of Health, etc.	1674
No. 11—Record of bacterial content of empty 1 quart milk bottles examined by Board of Health, etc.	1674
No. 12—Sample as exhibit 11, except being tabulation of pint bottles	1675
No. 13—Same as exhibit 11, but being for $\frac{1}{2}$ quart bottles	1675
No. 14—Same as exhibit 11, but being for $\frac{1}{2}$ pint bottles	1676
No. 15—Tabulation of laboratory record cards show- ing violations but size of bottle unclassified..	1676

No. 16—Section 10, U. S. Public Health Service standard milk ordinance	1677
No. 17—Copy of section 10, of Public Health Service milk ordinance as amended June, 1939....	1678
No. 18—Tabulation of samples of empty milk bottles and results of bacteriological examination, etc.	1679
No. 19—Tabulation showing results of paraffin experiments	1687
No. 20—Report of tests using wet and dry plaques after being run through paraffin bath, etc. ..	1689
No. 21—Result of tests as in exhibit 20, but experiments conducted at later time	1691
No. 22—Letter January 13, 1936, Dean Milk Co. to Bundesen	1692
No. 23—Letter August 2, 1938, Ex-Cell-O Corp. to Bundesen	1693
No. 25—Regulation adopted August 6, 1935 concerning type of milk and cream to be used in manufacture of butter, etc.	1695
No. 26—Regulation adopted Nov. 12, 1935, requiring that milk and milk products be served and dispensed to consumer in original unopened container as received from distributor.....	1697
No. 27—Resolution adopted July 18, 1939, as to use of standard nutrient, agar, prescribed in 6th edition of American Public Health Association "Standard Methods of Milk Analysis".	1697
No. 29—Resolution presented to Board of Health Oct. 16, 1939 with respect to single-service containers for milk	1698
No. 30—Letter June 27, 1939, Ranan to Bundesen....	1705
No. 31—Excerpts from minutes of Board of Health meeting May 15, 1939.....	1705

Objections to depositions filed April 27, 1940.....	1709
Master's report filed April 27, 1940.....	1710
Notice of objections filed May 7, 1940.....	1737
Objections to Master's report filed May 7, 1940.....	1738
Notice of motion filed May 14, 1940.....	1750
Motion for decree filed May 14, 1940.....	1751
Order continuing motion for entry of decree entered May 14, 1940	1752
Memorandum filed October 18, 1940.....	1752
Findings of fact filed October 23, 1940.....	1756
Conclusions of law filed October 23, 1940.....	1758
Decree entered October 23, 1940.....	1759
Master's certificate filed October 23, 1940.....	1761
Notice of appeal filed October 23, 1940.....	1762
Statement of points filed November 15, 1940.....	1763
Clerk's certificate of service.....	1765
Appellant's designation for short record.....	1766
Bond on appeal.....	1767
Notice of motion	1769
Motion for stay of decree filed October 24, 1940.....	1770
Order denying stay of decree filed October 24, 1940...	1771
Designation of record.....	1772
Order re filing transcript.....	1774
Stipulation as to exhibits.....	1774
Order as to exhibits	1775
Clerk's certificate	1776
Stipulation as to printing	1777

882

• • (Caption) • •

Tuesday, September 12, 1939,
10 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall.

Mr. Schaefer, Mr. Horan.

883 Mr. Gariepy: If the Master please, there has been considerable talk with regard to the United States Public Health Service rules and regulations and suggestions pertaining to milk control, tests and standards. I would like, for the purpose of clarifying the record concerning the position of the United States Public Health Service, to ask counsel for the City whether they will stipulate that any work of said body, the United States Public Health Service, or the advisory board thereof, is merely advisory work and is not regulatory or mandatory upon any city or municipal authorities or board of health thereof.

The Master: That is the fact, is it not, Mr. Schaefer?

Mr. Schaefer: That is the fact, yes.

Mr. Gariepy: Purely advisory.

The Master: Off the record.

(Discussion off the record.)

Mr. Gariepy: I think we ought to have that clear, that all questions concerning any meetings the board has had or any recommendations the board has made are merely standards and suggestions and do not bind the plaintiff or the City of Chicago in this case.

I would like to call Dr. Arnold to the stand. Take the stand, Doctor, please.

884 Mr. Schaefer: On what ground or principle?

Mr. Gariepy: I have the right to call any witness in the court room that I want to call, who is present.

Mr. Schaefer: I object to their calling Dr. Arnold.

Mr. Gariepy: What is the ground of the objection?

Mr. Schaefer: Dr. Arnold will testify in this case. Dr. Arnold will testify when I put him on.

The Master: I thought you had some other witnesses you were going to put on today, Mr. Gariepy.

Mr. Gariepy: I do, and I have got the witnesses, and we will be here all day, but I want to start out by saving a lot of time, thereby honoring the Master's suggestion of keeping the record down, by identifying certain records.

The Master: You are entitled to call him as a witness.

Mr. Schaefer: We will be here all week. It is all right with me, if you want to do it this way.

The Master: Off the record again, please.

(Further discussion off the record.)

The Master: You may call him, if you wish.

Mr. Schaefer: I don't think Dr. Arnold has been sworn as yet.

Mr. Gariepy: All right.

885 LLOYD ARNOLD, called as a witness on behalf of the plaintiffs, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name.

A. Lloyd Arnold.

Q. Your address?

A. 5844 Stony Island.

Q. What is your business or occupation?

A. Professor of bacteriology and public health at the University of Illinois, College of Medicine.

Q. And how long have you been such?

A. About fifteen years.

Q. Are you a member of the Board of Health of the City of Chicago?

A. Yes, sir.

Q. Were you such in the year 1937?

A. No, sir.

Q. Doctor, I show you a book or pamphlet marked April 27, 1939, as Plaintiffs' Exhibit 4, which was so marked when the deposition was taken. Will you look at that and tell me whether you ever saw it before? (Handing document to the witness.)

A. Yes, sir.

Q. Who prepared it?

A. I prepared this.

Q. Does that bear your signature?

A. Yes, sir.

886 Q. Did you hand Plaintiff's Exhibit 4 or deliver Plaintiff's Exhibit 4 to Dr. Herman Bundesen, then president of the Board of Health of the City of Chicago, in the year 1937, on or about December 4th?

Mr. Schaefer: That is objected to as immaterial, if the Master please.

The Master: What is this supposed to be? A report to Dr. Herman N. Bundesen by Dr. Lloyd Arnold, on a single package fabricated paraffined paper container for fresh fluid pasteurized milk, December 4, 1937. I will overrule the objection. He may answer.

The Witness: A. I gave it to Mr. Krueger of the Board of Health.

Mr. Gariepy: Q. And what is his position there, or office?

A. I think he is in charge of the dairy division.

Q. Did you ever deliver the same exhibit, No. 4, to Dr. Herman Bundesen?

A. I talked to Dr. Bundesen about it. I don't know whether he has seen it or not.

Q. For whom did you prepare said report, Plaintiff's Exhibit 4?

A. For a Mr. Scott of the Ex-Cell-O Corporation.

Q. And over what period of time were you preparing it?

887 A. I think about a month or two months, not more than a month, hardly, as I remember it.

Q. Were you paid for your services in securing the data, in preparing that?

A. Yes, sir.

Q. And how much?

A. I think it was \$250.

Q. By whom?

A. By the Ex-Cell-O Corporation, Mr. Scott.

Q. During the month of August, 1939, did you or any member of the Board of Health of the City of Chicago attend a meeting of the advisory board of the United States Public Health Service at Minneapolis?

Mr. Schaefer: That is objected to, if the Master please.

The Master: It is preliminary. I will let him answer.

The Witness: A. I do not know of any advisory board meeting at that time.

Mr. Gariepy: Q. Do you know of any meeting of the advisory board during the month of August or July, 1939?

Mr. Schaefer: This is the advisory board of the United States Public Health Service?

Mr. Gariepy: This is the advisory board of the United States Public Health Service, that you mentioned the other day, when Dr. Orvis was on the witness stand. You said they had recently promulgated some rules and 888 regulations that were new.

The Witness: A. There was a meeting either in June or July—I don't know just when it was—this year.

Mr. Gariepy: Q. Where?

A. In Washington, D. C.

Q. Did you attend?

A. No, sir.

Q. Did any member of the Board of Health of the City of Chicago attend, that you know of?

A. Well, Mr. Krueger is on the advisory board, but not as a member, as connected with the Board of Health.

Q. The question is, did he attend?

A. He attended, yes, sir.

Q. What date was that?

A. I don't recall the date.

Mr. Gariepy: That is all, Doctor.

The Master: Any cross?

Mr. Schaefer: I would like to look at that exhibit, first, please.

The Master: Yes.

Mr. Schaefer: No cross-examination.

Mr. Gariepy: That is all, Doctor.

(Witness excused.)

Mr. Gariepy: Mr. Scott.

889 GEORGE D. SCOTT, called as a witness on behalf of the plaintiff, having first been duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name.

A. George D. Scott.

Q. And your address.

A. 1200 Oakland Boulevard, Detroit, Michigan.

Q. What is your business?

A. The manufacture of the Pure-Pak machine for single service containers.

Q. And what is your capacity with the Ex-Cell-O Company?

A. National sales manager for the Pure-Pak division.

Q. How long have you been such?

A. Three years.

Q. What are your duties?

A. To supervise sales of the branch sales offices throughout the country and to conduct our advertising division.

Q. Are you acquainted with the places, cities and villages in the United States wherein your product, the Pure-Pak container, is being used for the sale of fresh fluid milk, at this time?

A. Yes, sir.

Q. How many cities and villages are using said Pure-Pak container?

890 Mr. Schaefer: If the Master please, I object to that. The first time we went into that you reserved your ruling on materiality. We have been into it now some ten or fifteen times during the entire progress of the case. There is no particular advantage served by going into it again.

The Master: Oh, I will let him answer.

The Witness: A. We are in the principal cities throughout the United States.

Mr. Gariepy: Q. Name them.

A. New York City; Philadelphia, Pennsylvania; Baltimore, Maryland; Washington, D. C.; Dayton, Ohio; Indianapolis, Indiana; Detroit, Michigan; Minneapolis, Minnesota; Seattle, Washington; Los Angeles, California; San Francisco, California; Oakland, California; Phoenix, Arizona; Flint, Michigan; Louisville, Kentucky; are among the cities that we are in.

Q. How many cities and villages, do you know, are using it?

A. According to a personal survey of mine, four hundred and eighty-one at this time.

Q. And approximately how many Pure-Pak containers are being sold daily?

A. Between three and four hundred thousand.

Q. Have you had occasion during the past three
891 years to make contact with the New York experi-
mental station at Geneva, New York?

A. Yes, sir.

Q. Have you had occasion during the past three years
to meet Dr. Arnold and members of the Board of Health
of the City of Chicago?

A. Yes, sir.

Q. When did you first meet members of the Board of
Health of the City of Chicago, with regard to the use
of the Pure-Pak container in the city of Chicago?

Mr. Schaefer: That is objected to as immaterial, if the
Master please.

The Master: Overruled.

The Witness: A. I first met Mr. Paul Krueger, I
would say, in the last ten days of October, 1937.

Mr. Gariepy: Q. Is he an employee of the Board of
Health?

A. I understand he at that time was the chief of the
milk division of the Department of Health.

Q. What was the purpose and object of your meeting
him at that time?

A. Well, I wanted to discuss with Mr. Krueger the
possibility of obtaining a permit for allowing our machines
to operate here in the city of Chicago.

892 Q. And distributing the Pure-Pak container?

A. Yes.

Q. And was that the occasion for your contacting the
New York experimental station at Geneva?

A. No, sir. The New York experimental station had
been contacted before that time.

Q. Have you met Dr. Arnold, who testified here a
minute ago?

A. Yes.

Q. What was the occasion of your meeting Dr. Arnold?

A. In a conference with Mr. Krueger—

The Master: Q. When?

A. This same conference, Master, in the last ten days
of October, 1937.

Mr. Gariepy: Q. Proceed.

A. (Continuing) —I ask Mr. Krueger what he thought
of our efforts with the Breed-Sanborn group in Geneva,
New York, and Mr. Krueger replied that while he had a
lot of respect for the gentlemen in the New York State

Agricultural Experimental Station, they were too far away from Chicago to work as close with the Chicago Board of Health as they would like to have them work, and for that reason he recommended that it would be helpful to us if we would contact someone locally to carry on this work for us.

893 Q. Did he name the person to contact?

A. Yes, he did.

Q. Who was it?

A. He told me to get in touch with Dr. Lloyd A. Arnold.

Q. And did you do so?

A. Yes.

Q. How long after you had this conversation with Mr. Krueger did you contact Dr. Arnold here?

A. As I recall, it was the same day.

Q. And where did you see him?

A. At his offices on West Polk street.

Q. What happened at that meeting between you and Dr. Arnold in securing data for the matter of the Pure-Pak container and its use in the city of Chicago?

A. Well, I told Dr. Arnold—I had never met Dr. Arnold before, and upon meeting him in his offices there on West Polk street I told him I had been to see Mr. Krueger that morning and that Mr. Krueger had told me that Dr. Arnold had been doing research work for the Chicago Board of Health for a great many years and that they had every confidence in the world in the type of work that had been done by Dr. Arnold, and that if we could get Dr. Arnold to carry on this research work for us he felt there would be no difficulty in finally establishing a permit for us to

894 operate in Chicago.

Q. Did you engage Dr. Arnold to do the work?

A. Yes, sir.

Q. Was there any fee agreed upon for the services to be rendered?

A. Yes, sir.

Q. How much was it?

A. Dr. Arnold thought that it would require about three months to complete his work and that it ought to be worth about a thousand dollars.

Q. Did you agree to pay him a thousand dollars?

A. Yes.

Q. Did you immediately afterwards aid him in the mat-

ter of securing data for the preparation of a report which I show you, marked as Plaintiff's Exhibit 4 here?

A. Yes, sir, I did.

Q. And where did you next meet him, after meeting him at Polk street at his office?

A. I next met Dr. Arnold, by agreement by telephone between ourselves, at the New York State Agricultural College at Geneva, New York.

Q. And how long were you there with him?

A. All day.

Q. Gathering data?

A. Yes.

Q. And who did you see there and discuss this matter with?

A. Dr. Arnold and myself and Dr. Breed, director of the experimental station, and Dr. Sanborn, were the principal people.

Q. Where did you go after that?

A. After discussing the situation all day there in Geneva, Dr. Arnold thought that it would be well if we had all—

Q. Did he say so?

A. Yes. Dr. Arnold told me that he would like to have all the data that he could get from the board source, from the board mill, which was located in Richmond, West Virginia.

Q. Did you go there?

A. Yes, sir.

Q. How long did you stay there with Dr. Arnold?

A. No, Dr. Arnold did not go to the board mill with me. Dr. Sanborn went with me as a technician, to pick up the required samples.

Q. Where next did you go with Dr. Arnold?

A. After completing the samples, Dr. Sanborn took them back to Geneva for the carrying out of the bacterial work. I next met Dr. Arnold in Detroit.

Q. What did he do in Detroit in regard to securing data for the Board of Health?

A. Dr. Arnold called me on the phone, or else I called Dr. Arnold on the phone, and he told me it would be very beneficial to come to Detroit and get all of the details surrounding the manufacture of the equipment and visit with our own department of health and obtain their first hand experience, since they had been working directly with Pure-Pak for a couple of years in that city.

Q. Did you make contact with your board of health in Detroit for Dr. Arnold, to give him this data?

A. Yes.

Q. And how many days was he in Detroit doing this work?

A. I believe two days.

Q. Where did he next go, if you know?

A. A few days following our conference in Detroit, Dr. Arnold called me on the telephone at our Detroit offices and asked me to come to Chicago, that his work was progressing well, and that there were only two or three other holes that he could see that needed plugging and that he wished to inspect the carton converting plant here in Chicago, where the container blanks were converted from the board.

Q. What was the name of that company, Doctor?

A. The Chicago Carton Converting Company, located in the southwest section of Chicago somewhere. I don't know just exactly where.

897 Q. Did you go out there with him?

A. Yes.

Q. Did you make an inspection there with Dr. Arnold?

A. Dr. Arnold, Mr. Livingston, Mr. Dean, Sr., and I believe Mr. Dean, Jr., all went out there with us.

Q. Then what further contact did you have with Dr. Arnold concerning further data for this report?

A. After leaving the Chicago Carton Converting Company, Dr. Arnold wanted to see the Dean milk plant, so there could be no possible objection as to the construction of the milk plant, and we went out there.

Q. Where was that plant located?

A. I believe it is on Fulton street. I am not very familiar with that particular section.

Q. Just out of the loop here?

A. Yes.

Q. And then after that did you have further contact with him and further data for this report.

A. My next recollection is that Dr. Arnold asked me to come to Chicago for the purpose of simply going over the data that had been compiled, to see whether or not there were any comments or possible suggestions along the method of presentation, and I did come to Chicago and talk with Dr. Arnold about the situation. I believe it was in my hotel room at the Palmer House.

898 Q. What date was that, approximately?

A. I would say that was about the first or second of December, 1937.

Q. December, 1937?

A. Yes.

Q. Did you ever see this Plaintiff's Exhibit 4 before?

A. Yes, sir.

Q. Where did you see it the first time?

A. The first time I saw it, I believe, was at the conference in the hotel room, prior to Dr. Arnold taking it to the Board of Health.

Q. Did you see him after he had taken it to the Board of Health, or reported to you that he had?

A. Not immediately. From my hotel room Dr. Arnold called Dr. Bundesen's office for an appointment, and did not get the appointment at that time, and he asked me to return to Detroit and that he would make the appointment within the next day or two and call me on long distance in Detroit. During this same conference at the Palmer House, Dr. Arnold felt that this was sufficient data to—

Q. Did he say this? Not what he felt.

A. Yes, he told me he thought this was sufficient data to obtain a permit, and, in fact, Dr. Arnold asked me in what form we would like to have the permit, I mean,

899 whether it should be in letter form, and I replied to Dr. Arnold that it did not make any difference to us, that whatever was the standard accepted form we would be glad to have.

Q. When did you next hear from him after that?

A. I believe it was on a Saturday, at 12 noon, he asked me to be at my office in Detroit, at which time he would call me and give me the results of his conference with Dr. Bundesen's office.

Q. Did he call you in Detroit on that Saturday at noon?

A. Yes, sir, he did.

Q. And did he tell you of his conference with Dr. Bundesen?

A. Yes, he did.

Q. Did he give you the permit or say he had a permit?

A. No. He said that he was not able to get a permit and that he did not understand the situation; as a matter of fact, he told me he had never taken such a lashing from anybody in his life as he had taken from Dr. Bundesen, because he had proceeded with the gathering of this data

on behalf of Pure-Pak without first consulting Dr. Bunde-
sen personally.

Q. Subsequent to 1937 did you have occasion to see the
president of the Board of Health, Dr. Black, in the year of
1939, concerning the use of the Pure-Pak container in
900 the city of Chicago?

A. Dr. Black, yes, sir, I did.

Q. And when was that that you saw Dr. Black?

A. Just a minute, please. About two weeks prior to
January 11th. I realize that is perhaps an odd answer,
but I have January 11th definitely fixed in my mind. It was
two weeks prior to January 11th.

Q. Where was this meeting with Dr. Black?

A. In Dr. Black's office here in Chicago.

The Master: What year was this?

Mr. Gariepy: 1939.

Q. Who was present at that time, Mr. Scott?

A. Dr. Black, and, I believe the gentleman's name is
Major Conley or Major Courtney.

Mr. Schaefer: Conway.

The Witness: Conway, yes, Major Conway.

The Master: Q. Where was this meeting?

A. In Dr. Black's office here in the city hall, sir.

Q. At the Board of Health?

A. At the Board of Health, yes.

Mr. Gariepy: Q. Did you have a conversation with him
then concerning the Fieldcrest Dairies using the Pure-Pak
container and your container being used?

A. Yes, sir, I did.

901 Q. What did you say to him concerning the permit
for the use or why you could not use it and so on?

A. I told Dr. Black that I had not had the opportunity
of meeting him personally before and that in my opinion,
as a member of the board, perhaps he had not been advised
of all of the situation concerning this thing and all of our
efforts over a period of months, and I would like the oppor-
tunity of presenting to him personally some of the situa-
tion that we had gone through, in order to satisfy the Board
of Health, and he said he did not know whether he had heard
all the story, but he would be glad to hear it from me per-
sonally.

When I finished the conversation with him, or near the
close of the conversation, Dr. Black said that he felt it was
an unfortunate situation and that he would do something

about it, that the Ex-Cell-O Corporation had been extremely patient.

The Master: Had been what?

The Witness: Extremely patient.

Mr. Schaefer: I am sorry; I missed a part of that answer. May I have the answer read back, please?

(The witness' answer was read by the reporter as above recorded.)

902 The Witness: A. (Continuing.) Dr. Black further stated that this was one of the major problems that he had aired since becoming acting president of the Board of Health and that he certainly would make an investigation and that we would get some action and it would not take him two years to do it, and he asked me to come to his office about two weeks later for another conference.

Mr. Gariepy: Q. Did you do so?

A. Yes, sir.

Q. And was the next conference at his office, at the same place?

A. Yes, sir, at the same office.

Q. And who was present then?

A. In my sight there was Major Black—Dr. Black, pardon me—Major Conway, Mr. Sam Dean, Sr., Dr. Arnold, and Mr. Paul Krueger.

Q. And what did Mr. Black say to you on that occasion concerning the use of the Pure-Pak container in the city of Chicago?

A. Dr. Black said that in the meantime he had been so busy that he had not been able to give the situation but very little thought, but the thought that he had given it had convinced him that he did not want to plunge off the end of the board into this situation and that so far as
903 he was concerned at that time no permit would be granted.

Q. And what did you say to him?

A. Well, I asked Dr. Black whether or not he had any personal objections to the distribution of milk in Pure-Pak containers in the city of Chicago.

Dr. Black replied no, he did not have any personal objections.

Then I asked Dr. Black, if he had no personal objections what was the objection of the board based upon, and he said that he thought that it could not be properly distributed under the present Chicago ordinance.

I told him that we had checked the ordinance many, many times and that in our opinion the ordinance was in no way antagonistic or unfriendly to the single service containers, because they were simply not mentioned, and since it was a matter of opinion on his part that they could not be used and an opinion on our part that they could be used, I asked Dr. Black on the basis that he himself had no personal objections would he mind if we called in a referee, say one of the federal judges in Chicago, to read briefs and decide whether or not the containers could properly be used under the present ordinance.

904 Q. What did he reply?

A. Dr. Black replied that he would have strenuous objections to any such action as that on our part.

Q. Did you have any further conversation with him at that time about securing a permit?

A. I asked Dr. Black if there was anything in the world that we could do, to work with him in any way toward the end of coming in and doing business in the city, and he said yes, there was one thing we could do. I asked him what it was, and he said we should get the data approved by the United States Public Health Service, and I told Dr. Black we certainly would try to do that, and I asked him directly if I should go to Washington and obtain a permit or obtain the approval of the United States Public Health Service for the distribution of Pure-Pak Containers in Chicago, whether or not he would then issue us a permit to begin our operations.

Q. What did he reply to that, if anything?

A. Dr. Black replied that he would not give us a permit, even though it were approved by the United States Public Health Service.

Q. This conversation and these requests were all made on behalf of Fieldcrest Dairies, of which Mr. Dean is
905 president?

A. Yes, sir.

Q. With whom you had a license agreement at that time for the sale of Pure-Pak containers and the use of your machine?

A. Yes.

Q. Have you heard from Dr. Arnold at any time since December, 1937, concerning this report or the permit that he discussed with you that month?

A. Yes, I had a letter from Dr. Arnold regarding the permit.

Q. What year was that?

A. The letter is in the file, I believe, Mr. Gariepy. I don't recall the date at the minute.

Q. Was it in 1937?

A. I don't believe it was. I believe it was in 1938.

Q. From 1937, when Dr. Arnold finished this report, Plaintiff's Exhibit 4, up until the time you saw Dr. Black in January of 1939, what was done with regard to securing statistical data and research data at the University of Illinois?

A. Well, in February—

Mr. Schaefer: That is objected to, on the ground the witness cannot know.

906 The Master: Do you know?

Mr. Gariepy: Q. Do you know this?

A. Yes, I know of a lot of work we did there, Master.

The Master: Go ahead. Tell us what you know and not what you heard.

The Witness: A. All right, sir. In February, 1939, we shipped a machine to the University of Illinois—1937, February, 1937, we shipped a machine to the University of Illinois, in order that they might make all of the practical and sanitary and bacterial examinations on our equipment in their own place.

Mr. Gariepy: Q. And what department or what men were to work on this machine and perform this research work?

A. Dr. Tracy was to work on the practical application of the equipment in an actual dairy plant and Dr. M. J. Prucha was to work upon the bacterial end of the experiments.

Q. Was there any subsidizing of these two men in any form, shape or manner, in regard to the research work to be carried on with that machine at the university?

A. No, sir.

Q. Did you people ever pay them any money at all?

A. I don't think so.

907 Q. To secure any type of reports, favorable or unfavorable?

A. No, sir.

Q. Have you had any contacts with them in the way of contracting for services in advance at any time from February up to this time?

A. Never at any time.

Q. Did you people do anything with regard to checking up on their reports from time to time, to see whether they were favorable or unfavorable with regard to the Pure-Pak container?

A. Yes, at various meetings and general conventions held at the university I have attended myself, with associates of my company, and naturally at that time we have asked for reports and checked upon the progress of the experiments.

Q. And was there any charge made for the machine sent down there?

A. No, sir.

Q. And at whose suggestion was the machine sent there for this experimental and research work?

A. Mr. Sam Dean, Sr., suggested that we send the machine there.

Q. Mr. Scott, do you know of the villages and cities where the Pure-Pak is being sold now, and approximately how many of them are operating under this code called the United States Public Health Service ordinance?

Mr. Schaefer: That is objected to.

Mr. Gariepy: I asked him if he knew.

The Master: He may answer.

The Witness: A. Yes, sir, I do know.

Mr. Gariepy: Q. How many?

Mr. Schaefer: Objection.

The Master: Overruled.

The Witness: A. Three.

Mr. Gariepy: Q. Name them.

A. Louisville, Kentucky, Seattle, Washington, Phoenix, Arizona.

The Master: What is the last one?

The Witness: I said Phoenix, Arizona.

Mr. Gariepy: Q. Do you know Mr. Leslie Frank, a member of the United States Public Health Service Department at Washington, D. C.?

A. Yes, sir, I do.

Q. Do you know—I think it is Colonel Bush or Major Bush?

A. No, I have not met that gentleman.

Q. Have you been in contact with the United States Public Health Service with regard to the use of the Pure-Pak container and any rules and regulations that may be promulgated by said department?

A. Yes, sir, I have.

Q. Do you know of any rule or regulation issued by that department during the past three years, from the time you have been with the company, which restricts or prohibits by way of suggestion the use of the single service container for the sale of Grade A milk in a city or village?

A. No, sir, I do not.

Mr. Gariepy: Take the witness, Mr. Schaefer.

Mr. Schaefer: No cross examination.

Mr. Gariepy: You may be excused, Mr. Scott.

(Witness excused.)

Mr. Gariepy: Dr. Prucha.

MARTIN JOHN PRUCHA, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, Doctor?

A. Martin John Prucha.

910 Q. Where do you live?

A. 702 West Nevada street, Urbana, Illinois.

Q. What is your business and occupation?

A. I am a teacher and carry on research work.

Q. Connected with what organization or body or school or laboratory?

A. I am connected as a teacher with the College of Agriculture at the University of Illinois and as a research man I am connected with the Agricultural Experimental Station of the same institution.

Q. How long have you been such?

A. I came to Illinois in 1913. I have been there ever since.

Q. What degrees do you have from schools and colleges?

A. I received my Bachelor of Philosophy degree in 1903 from the Wesleyan University at Middletown, Connecticut. I received a Master's degree at the same institution in 1908 and received a Doctor of Philosophy degree in 1913 from Cornell University, Ithaca, New York.

Q. From 1903 to 1910 what work were you engaged in?

A. I was employed as bacteriologist in the New York Agricultural Experimental Station.

Q. And from 1910 to 1911 what were you doing?

A. In 1910 and 1911 I held a university fellowship at Cornell University, doing graduate work.

911 Q. Since 1913 what has been your office at the University of Illinois?

A. I became an assistant professor, the same position I held at Cornell before I left there, first, and then an associate professor, and then a full professor later on in the college. Then in the agricultural experimental station I became assistant chief, and finally in 1920 its chief in research, in my field in the experimental station.

Q. That is the Illinois Agricultural Experimental Station?

A. Yes.

Q. Who pays your salary, Doctor, for the work you are doing there in the research in the Illinois Agricultural Experimental Station and on the staff?

A. About half of my salary comes, of course, from the state funds, from taxation, from the budget of the university, and the other half comes from federal government money, from the Hatch, I believe, and Adams acts.

Q. How long have you been receiving some money from the federal government under the Hatch Act and Adams Act.

A. Since 1913.

Q. What courses do you teach at the University of Illinois?

912 A. I teach elementary dairy bacteriology, which essentially is dairy sanitation, a lecture course and a laboratory course in the same field, and under my direction is given another advance course in the same field, and I am giving two graduate courses leading towards Doctor's degrees for the students.

Q. Do you do work for boards of health of cities and municipalities?

A. Well, I am not employed as such, but I have been asked a good many times questions and have as a result of their suggestions taken up experimental work.

Q. Have you done work for the city of Chicago?

A. Yes.

Q. The Board of Health?

A. Yes.

Q. When?

A. Both in regard to—I have been here on two different occasions giving talks to the inspectors.

Q. Of the Chicago Board of Health?

A. Yes. Then a year ago last spring early I had a letter from Dr. Bundesen, asking if I could devote some time to research work in the matter of pasteurization, the introduction of this machine called heat exchanger or short time high temperature, that was coming up, and Dr. Bundesen and the Board of Health were not quite certain about certain problems, so they asked me and asked 913 Professor Parfitt of Purdue to come up and see if we could carry on some experiments on the subject, to help them settle the matter.

Q. Are you a member of the International Association of Milk Sanitarians?

A. Yes.

Q. And also of the Dairy Science Association?

A. Yes.

Q. And the American Public Health Association?

A. Yes.

Q. And how long have you been such?

A. I don't know. It would be years, a period of years.

Q. Have you written any scientific articles on bacteria, especially with regard to milk products and milk control?

A. That is my specialty and practically all of the publications I put out are dealing with certain phases of it.

Q. How many of them have you put out?

A. I am sorry, but I have not taken the time to count them.

Q. Approximately?

A. Oh, I should say they might be over a hundred, something like that. I don't know. I do not even have a reference to some of them.

914 Q. Have you made a scientific and laboratory analysis and study of the sanitary aspects of paper milk containers?

A. Yes.

Q. And how many years have you made that study and done that work?

A. We started in February, 1937.

Q. At whose suggestion was that work started?

A. I can't exactly give you information on that, because the transactions happen to be done through Professor Tracy. It was the same problem that Mr. Scott referred to when he said a machine was sent down to us.

Q. Did Mr. Scott suggest the undertaking of this study and this research work, or did you and Dr. Tracy?

A. We decided that.

Q. The two of you?

A. Yes. We felt that this was a new problem in the dairy industry coming on, and that we, being responsible to the consumers, trying to be of help to the board of health and to the dairy industry, that we ought to go into the matter and study it and supply information, if we could get it.

Q. Did you have other machines, other than the Ex-Cell-O machine, down there?

915 A. Yes.

Q. To conduct your research work on?

A. Yes.

Q. What other machines did you have?

A. We had the American Can machine. The two machines were on the floor at the same time. And then we used the Sealrite container also. Those three different containers we used in our study.

Q. All three of them?

A. Yes.

Q. Pure-Pak, American Can, and Sealrite?

A. Yes.

Q. Who financed this study, Doctor, of the sanitary aspects of the paper milk container?

A. As I said before, personally I was responsible for that work and I spent a lot of time on it, and my salary, of course, came from the state and federal government funds. The facility for the work was offered by the companies, by supplying us with the machines, installing the machines and supplying us with the containers.

Q. Is this study a project of the department of dairy husbandry of the University of Illinois?

Q. What do you mean when you say it is a project
916 of theirs?

A. In a public institution of that kind we have a set-up that any new study must be o.k.'d. I use the word "o.k."

Q. That is all right.

A. It is not a good word.

Q. Go ahead.

A. Must be approved by the head of the department, by the director of the experimental station and, of course, by the authorities of the university. So, of course, when

we plan any new study, in my case, for example, I outline the project, what we would like to do, what our plans are, the method of study, how much it will cost, how long it will take, and present it to the head of the department.

Then the head of the department studies it, and if he agrees with it he takes it up with the director and dean of the college, and that is discussed, and when finally authority and seal is put on it, it comes back to us.

Q. Then it is a project of the university?

A. Then it becomes a project of the university, yes.

Q. Describe the nature of these investigations and experiments that you say you conducted under this project.

A. Professor Tracy, of course, took responsibility 917 for the study in the plant, the plant study, practical study, dealing with the bottling and all of those problems, and my responsibility was to study the bacteriology, the sanitation of the whole problem.

Q. What did you do in your study of the sanitary aspects of the Pure-Pak containers?

A. I felt myself that it is advisable when we go into it and it is a new field, that we should start right from the beginning. So we started right with the paper mill, to some extent. We did not make too elaborate a study of the paper mill, only enough to see what the sanitary condition, bacteriology, of paper making is, where contamination may come, with the idea of suggesting to the mill changes, if need be.

Q. Did Fieldcrest Dairies or Mr. Scott or the Ex-Cell-O Corporation pay your time and services going to the mills, making this check-up?

A. The question came up that if we do this study we have to go to the mill. I went to the head of the department and I told the head of the department that this is a study where I want the department to pay the traveling expenses to the mill and back. He replied, "I have no money in the budget." I said that of course I prefer to have department money, but the companies all three companies 918 are offering to pay us the traveling expenses. He said it is all right with the department if I accept the traveling expenses.

Q. Did you do that?

A. Yes.

Q. Did you receive any compensation, other than traveling expenses?

A. No, no compensation.

Q. At any time?

A. No, sir.

Q. From any of the three companies?

A. No, sir. I did not want that.

Q. Will you tell the Master the tests you made and the detail of your study on the sanitary quality of the paper and the methods that were used in determining the manner of sterility?

A. The laboratory methods that were used—of course, fundamentally we were determining the number of bacteria along the road and in the containers and to some extent we also studied the type of bacteria when we found any.

Q. What test did you make to ascertain the type and the amount?

A. We went in the paper mill, for example.

The Master: In what?

A. Into the paper mill, and we took samples and took equipment with us, necessary equipment with us, and 919 used the laboratories, and took samples of the water that they use for diluting pulp. We took samples of the pulp along the road, the path of the travel. We took samples any place we could think of, and finally we took samples of the finished product of the paper in the paper mill.

The Master: Off the record.

(Discussion off the record.)

Mr. Garipey: Q. Why did you do that, Doctor?

A. I felt that we wanted information on all these problems. I wanted to know personally, if I should speak about it, just what the set-up in the paper mill is, how qualified the paper mills are to produce products for food.

Q. Is that from a research standpoint?

A. From a research standpoint, yes.

Q. And what about this matter of going to the mills from a practical standpoint, after you had ascertained and after you know what the quality of the board is and the processes employed in the making of the board?

A. I don't know whether I fully appreciate the question. I would have to refer to the mill to answer it somewhat.

Q. After you have been to the mill.

920 A. After I had been in the mill I found in the mill that the man—they had a laboratory man, a well trained laboratory man, who I found had a very com-

plete control of the process of operations, the manner of sterilization of water and right through, and upon an examination of the paper we found the paper there was practically sterile.

Q. What do you mean by sterility, Doctor?

A. We have a bacteriological definition of sterility, that it means complete freedom from all bacterial and all germ life, complete freedom from any kind of germ life.

Q. And what does sterility mean from a milk sanitary point of view?

A. In the dairy operations the term was borrowed and used with a different meaning from a practical standpoint. It means the reduction—really, strictly speaking, it means the reduction of bacteria to a reasonable minimum, the reduction of the total amount of bacteria to a reasonable minimum.

Q. To the degree of safety?

A. Yes.

Q. What factors contribute to the low bacterial content of this paper that you said you examined?

A. The paper board was made in such a way—as it is made, the wood is cooked, and when the cooked wood or pulp comes out it is a hundred per cent sterile, bacteriologically speaking.

Then it is diluted with water, and if the water is not pure, of course, the pulp will become contaminated by the dilution of the water. It will also become contaminated with bacteria from the equipment, if the equipment is not kept rather clean.

Then the pulp, after it is washed, goes in the bleaching process, and there it is again sterilized a hundred per cent. So that it is perfectly sterilized. So when it comes from the bleacher not a single bacteria is found in the mixture.

Then the third step is when finally the pulp is diluted with water and passed over to be made into paper, the layer of pulp or paper then runs over anywhere from thirty to one hundred and fifty steam rollers. These rollers are heated under pressure by steam, so that the pressure they use is about 250 pounds—pardon me, about 15 to 20 pounds pressure, as used on some of the rollers, and the temperature is raised to about 250 Fahrenheit on the roller, and the paper runs over it, so that when the paper comes to the end and is taken off the roller the paper is sterile, from this standpoint of definition.

Q. Do you know the methods employed to prevent contamination of that paper board after it leaves the rollers?

A. We followed it. We visited the place as it came off. It is cut by machine in squares and the machine piles it on something like this (demonstrating). Then it is wrapped in paper and finally bundles of about 3500 pounds are piled together in a bundle, and all wrapped in paper, and fastened, and then in that condition, on rollers or sort of skids, it is put into a railroad car and transported to the carton company.

Q. Do you consider that a satisfactory procedure from a sanitary standpoint?

A. From what I saw was being done, yes.

Q. Did you have occasion to go to the fabricating mill then?

A. I did.

Q. And did you inspect that mill from a sanitary standpoint?

A. I did.

Q. In regard to contamination and the preventing of contamination?

A. In the carton factory, you mean?

Q. Yes.

A. We did not take any bacteria samples there, because there is nothing to take.

Q. What do you mean, there is nothing to take?

A. The only thing we could have taken is to expose plates to air or something like that. We examined the paper after it passed through the plant, but we examined the question of the storage of these bundles. We found that they were stored in air conditioned rooms, at a proper temperature. They were inspected regularly, to prevent any entrance of any insects, and the general inspection, as far as I was concerned and could figure out, they tried all they could and were willing to make any changes reasonable to comply with any requirements to handle the product in a sanitary manner.

Q. Did you perform such tests on the board over a period, we will say, of twenty-four hours, to see whether the bacteria survived or not, on the paper board, as it came from that fabricating plant?

A. I made tests. We made some studies on the—I call

it self-purification of paper. I don't know whether you have reference to that.

Q. The test you made in regard to how much bacteria survived after a period of twenty-four hours.

A. Yes. We inoculated—these samples—

Q. No, just follow my question, Doctor. Will you find, in the sheaf of papers that you have before you, the results of the tests that you performed with regard to the 924 survival of bacteria on the paper board?

A. Yes. May I explain this table?

Q. Wait, let us first get it marked.

A. It is the determination of the number of bacteria after the container entered the machine and it was formed and the bottom was sealed before paraffining.

Q. You run ahead of the question, Doctor.

The Master: Off the record, please.

(Discussion off the record.)

Mr. Gariepy: (Addressing the reporter.) Will you mark this sheet for identification, please?

(The sheet referred to, containing results of tests made by the witness, was thereupon marked for identification Plaintiff's Exhibit No. 46.)

The Witness: I tried to determine this point—

Mr. Gariepy: Q. Referring to Exhibit 46?

A. Yes.

Q. For identification?

A. Yes. If paper becomes contaminated in any way with bacteria, how long will the bacteria survive in living condition on the paper?

Q. And when did you perform that test, Doctor, with regard to the longevity of the bacteria, in the event 925 there is some contamination?

A. This test was performed last Wednesday.

Q. Last Wednesday?

A. Yes. I had others, but this I did myself here.

Q. September 6, 1939?

A. Yes.

Q. And where did you perform it?

A. At my laboratory in Urbana.

Q. And where did you get the product or the board on which you performed this test?

A. The board I got from the Cherry River Paper Mill.

Q. And did you ask them to pick out any particular board?

A. No.

Q. Or just send you samples of board, or what?

A. Just send me samples of board. I didn't tell what it was. I told them it would be examined for bacteria, but the condition of the paper had nothing to do with this problem.

Q. What test did you apply and work out last week, last Wednesday, with regard to this matter of the longevity of bacteria on this board?

A. I took pieces four and a half inches long and two inches wide, strips. I made a bacterial suspension, and I dropped the pieces of paper in the suspension, and then

I kept it at room temperature and examined it every 926 so often.

Q. And what did you find after performing that test, say after the first six hours?

A. The bacteria died very rapidly on the paper.

Q. Tell the Master and counsel just exactly what you did find at that time that the bacteria died on the paper.

A. I dropped the paper in—

The Master: Q. Dropped it into what?

A. Dropped it into the bacteria suspension.

Q. What do you mean by that suspension?

A. I grew bacteria. I will show you a plate. I will explain it. I grew bacteria something like this (exhibiting plate to the Master). You see the red bacteria. There are millions and millions of bacteria in this red. Then I mixed it with water and a little milk, so they would not die, and then I dropped the paper in that suspension and the suspension had roughly, I think, six hundred million bacteria per cubic centimeter.

Mr. Gariepy: Q. In order to contaminate it?

A. Yes, in order to contaminate it heavily, the piece of board.

927 Q. Then what did you do next?

A. Then as soon as the water dripped off, I took it and disintegrated it into pulp.

Q. The board?

A. It took about five minutes, yes, and I plated it immediately, to count the bacteria in it on the board; and this is the first line. I made ten plates.

Q. Referring to exhibit number 46?

A. Yes, sir.

Q. You made ten plates?

A. In each plate I put two cubic centimeters, I took the bacteria and added 200 cubic centimeters of water, broke it up and added 200 cubic centimeters of water, to it, and on each plate I estimated the number of colonies that developed, then I made another strip of paper, prepared in the same way, that I kept thirty minutes and again subjected it to the same treatment and I got this number of colonies.

Q. How many is that?

A. Four hundred and fifty.

Q. After sixty minutes, how many colonies did you find on the paper?

A. After sixty minutes, I found from 3 to 20.

Q. The longest is two hours?

A. The longest is two hours. Six of the plates 928 did not have any, and three plates had one colony, and one plate, two colonies.

Q. At the end of five hours?

A. Two plates each had one colony and they had none, the rest of them.

Q. At the end of nine hours?

A. I didn't find any.

Q. At the end of twenty-four hours?

A. None.

Q. That means what?

A. That means that after the paper is contaminated and is held at room temperature and dries, the bacteria is killed. The bacteria are killed by drying.

Q. The purpose of this test, Doctor, was to bring out whether bacteria would survive on this paper board after you had contaminated it with bacteria and taken tests of the paper board after disintegrating it at the end of thirty minutes, nine hours and twenty-four hours?

A. Yes.

Q. At the end of thirty minutes, five hours, nine hours and twenty-four hours you found practically no bacteria surviving on the board, is that right?

A. That is correct. In other words, here is the point—

929 The Master: Q. After the board is disintegrated, how could you find any bacteria on the board?

A. I smashed the board all to pieces, diffused it in water so that any bacteria living there will be suspended in the mixture.

Q. Was the board in one piece while it was in suspension?

A. No. I had broken it up with the machine, completely.

Q. You just put little bits of it in this liquid?

A. I just took the board, put it in the machine, agitating the machine, cutting it in smaller pieces and let the machine agitate until the paper was reduced to pulp, then I took some of this water to plate it.

Q. Some of what?

A. Mixed the water, took some of this water to plate it, to see how many bacteria I found in that mixture. This is a method of trying to determine how many bacteria remained on a piece of board after they are reduced to pulp.

Q. You took the board and cut it up into small bits?

A. I took a piece of board and dipped it into the bacteria suspension for about ten seconds and when I 930 pulled it out, after the last drop fell off I put it into the machine and broke it up into pulp. I felt this is a better method to count the number of bacteria on the board, by smashing it up completely.

Q. Then what did you do with it?

A. Then I plated it. I determined the number of bacteria in this mixture.

Mr. Garipey: He took out portions of this mixture after it had been immersed in this contaminated liquid and plated it for the number of bacteria he would find, and counted them.

The Master: Q. You took a segment of this board?

A. Yes.

Q. And dipped it in this mixture, first?

A. Yes, sir.

Q. Then you took out the board?

A. Took the same piece.

Q. With the contamination on it?

A. Yes.

Q. And ground up the board?

A. Yes.

Q. Now, what did you do with the pieces of the board, did you put it in the mixture or put it on plates?

A. The board was completely disintegrated.

931 Q. What did you do with those little bits after you ground up the board?

A. The pulp, itself?

Q. Yes.

A. It is right in here on these plates.

Q. You put that on the plates?

A. Yes.

Q. You contaminated the board by dropping it into this mixture which had been contaminated?

A. Yes, sir.

Q. Then you ground up the board after it had been removed from the contaminated mixture?

A. Yes, sir.

Q. Then you put that contaminated board on those little bits of pulp?

A. After it was broken up.

Q. And put them on plates?

A. Yes, measured quantities.

Q. Quantity of what?

A. I put 2 cubic centimeters of the mixture—

Mr. Gariepy: Q. Doctor, I show you a series of six plates—

The Master: Wait a minute, before you go anywhere.

(Discussion off the record.)

The Witness: Do you see the pulp in there?

932 The Master: Q. Let me follow you. You seem to be going back and forth here. First you take a segment of this board four inches by some other dimension?

A. Yes.

Q. You dip that into a contaminated mixture?

A. Yes.

Q. So how long did you leave the board in the contaminated mixture?

A. About ten seconds.

Q. You took out this piece of board with the contamination on it?

A. Yes.

Q. Then you put it through a grinder or something?

A. Yes.

Q. Something that tears up the board into small bits?

A. Yes, sir.

Q. What do you do with the small bits?

A. Then I take the whole mixture—

Q. There is no mixture?

A. It is a mixture of water and the pulp, that is what I mean.

Mr. Gariepy: Q. These were actually made by you?

A. Yes.

Q. The results shown on these different plates here?

933 A. Yes, I just picked them at random.

Q. That is marked five hours?

A. Yes, sir.

Q. What does that show concerning bacteria?

A. At the end of five hours the plates look like this.

Q. Which is devoid of any bacteria?

A. Yes, except this—there was one colony on one plate and one colony on another plate. I took a plate that did not have any colony—

Q. Explain to the master what this plate is that I show you now, and how many hours that was in?

A. I think that was thirty minutes. This was one hour and this was two hours. At the end of two hours, holding the inoculated piece of board in at room temperature, letting it dry for thirty minutes, we got this (indicating); one hour, we got this (indicating).

The Master: Q. What do you get here? All I see is something with red spots.

Mr. Gariepy: Q. What do the red spots mean?

A. Each red spot, theoretically, is produced from one living bacteria, it grows.

The Master: Let's see if I get this straight, now. You are always skipping some point.

934 Q. Did you dip a piece of this board into a contaminated liquid and take the board out? The contamination is on the board, isn't it?

A. Yes.

Q. Now, you say you took this contaminated piece of board and disintegrated into some liquid?

A. Yes.

Q. Water?

A. Yes.

Q. Sterile water?

A. Yes.

Q. Is there any time at all elapsing between the final disintegration of the board and the time when you add your nutrient liquid such as milk?

A. This particular number one was dipped for ten seconds, the board, and at the end of ten seconds I took it and put it in the machine and broke it up in five minutes and then immediately I made plates. That took about three minutes. So that from the time I inoculated the

board until each plate was plated was eight to ten minutes, including disintegration and everything. Do you get that?

The Master: No. You see, I don't understand everything that you did.

A. I am skipping something?

Mr. Gariepy: Just follow the Master's questions and just answer him in chronological order as he 935 puts it to you.

The Master: Q. After you took out the piece of board from the contaminated liquid, you went ahead after that and wore up the piece of board and put the torn pieces in a sterile water, is that right?

Mr. Gariepy: Say "Yes", if that is right.

A. Yes.

The Master: Q. If contamination was in this liquid into which you dipped these pieces of board, that contamination would still be on the pieces of board after you took it out of the contaminated water, wouldn't it?

A. Yes.

Q. Now, how long would that contamination continue to exist on that piece of board, even after you disintegrated it?

A. I did not determine that.

Q. But it would take some time, wouldn't it?

A. Yes. I didn't do that, because I immediately performed this test.

Q. Now, then, it is reasonable to say now that, having dipped this piece of board into contaminated fluid, the contamination would be on the piece of board after the piece of board had been withdrawn?

A. Yes, sir.

936 Q. Now, you disintegrated the board?

A. Yes.

Q. And you took part of the mixture of sterile water and disintegrated board and put it on the plate?

A. Yes.

Q. Then you put something on the plate, put in nourishment, put in bacteria that might be in that disintegrated board?

A. Yes, sir.

Q. Or on it?

A. Yes, sir.

Q. What is the significance of these various time elements you have mentioned?

A. That is one board. I took another board, treated

it the same way and held it before I disintegrated it, in the room.

Q. Before you disintegrated it?

A. Yes, sir, so that it dries.

Mr. Gariepy: He dipped it.

The Master: Q. You did not put anything on these plates until after you had disintegrated it?

A. No. I prepared a number of these strips, I tried to determine this point, how long and how many bacteria will survive on the paper after the paper is infected, inoculated and allowed to dry.

Q. I know, but let me ask you this question: 937 Immediately upon withdrawing the piece of board from the contaminated mixture, did you go ahead and disintegrate the board or did you first permit the board to dry, then disintegrate it?

A. Both. You see, this plate represents—

Q. These are different experiments?

A. Yes.

Q. In other words, you did not in all cases disintegrate the piece of board immediately upon withdrawing it from the contaminated mixture?

A. In this case I did, that one.

Q. You did not do it in all cases immediately?

A. No, sir.

Q. But, at varying times?

A. Yes.

Q. You did that?

A. Yes.

Q. You waited some time between withdrawing the piece of board from the contaminated mixture and disintegrating it; in some instances you withdrew the piece of board from the contaminated mixture and you waited, you say, how long?

A. Thirty minutes—one hour—two hours.

Q. Before disintegrating it?

A. Yes, sir.

Q. And then, having disintegrated it, you would 938 put the disintegrated material on these plates?

A. That is correct.

Q. And then give nourishment?

A. That is correct.

*Q. To see if any of the bacteria were still in existence?

A. That is correct.

Mr. Gariepy: Q. These plates representing the red marks on these places, represent what?

A. The living bacteria. Each mark is theoretical.

Q. Each red mark?

A. Each of them is a bacteria colony, starting, theoretically speaking, from one germ. Now, may I add something?

Q. Yes.

A. This I know, one company that uses paper containers for food, they purposely buy a supply so that they have it several days before they can use it, because of this very thing—they feel when paper is—it purifies itself, if it is contaminated anywhere along the road with the bacteria that happened to drop on it, will die.

The Master: Q. Your point is that the paper 939 does not give nourishment to bacteria?

A. No. Drying kills bacteria.

Mr. Gariepy: Q. The quality of the paper is self purification?

A. It has that tendency.

The Master: Q. The results of your experiments show what, now?

A. The results of my experiments show that in 30 minutes 96 per cent of the bacteria had died.

Q. That is the one where the piece of paper was allowed to dry for thirty minutes before you disintegrated it?

A. Yes. Taken immediately, I figured there is no reduction as to disease; and in thirty minutes over 96 per cent—

The Master: Wait a minute. After thirty minutes over 96 percent of bacteria, did what?

A. Died.

The Master: But, you don't say that. I can't guess at it.

A. According to these counts, I did not find them.

Q. 60 minutes, then over 99 percent had died?

A. Yes.

Q. And in two hours you found a little more had died?

A. Yes, sir.

940 Q. And in 9 hours it was all gone?

A. Yes, sir.

Q. You could not find any bacteria at all?

A. Correct.

Q. Did you test to see whether they were the same bacteria as were in the contaminated mixture?

A. Yes. This is the criterion, this color.

Q. All right.

A. I am sorry I didn't make it clear.

The Master: Go ahead.

Mr. Gariepy: Q. Is that the standard method, Doctor, that you employed, that you used in order to detect the preservation or the existence of bacteria in the board?

A. Yes. I don't know of any better method.

Q. Have you been to the plant, Fieldcrest Dairies Milk Plant at Chemung, Illinois?

A. Yes.

Q. Have you taken samples of the fabricated containers there and performed tests upon them with regard to bacteria content?

A. Yes.

Q. Did you do that recently, Doctor?

A. We did that last March.

Q. 1939?

A. Yes, I think it was March.

941 Q. March?

A. Yes.

Q. And you took it under ordinary normal working conditions in the milk plant?

A. The bottles were picked by a man in the plant as they came off.

Q. At your direction?

A. Yes, and sent to us, to our laboratory.

Mr. Schaefer: Q. Were you there, Doctor?

A. I was not there myself when these particular bottles were taken.

Mr. Gariepy: Q. You have been to the plant, have you?

A. Yes, a number of times.

Mr. Gariepy: May I have this paper marked for identification as plaintiff's exhibit 47.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 47 for identification.")

Q. What test did you perform on the sample of the blank containers that you received from the Fieldcrest Dairies in March?

A. In the first place, 200 containers were examined that way.

Q. How did you examine them, give the Master the technique?

942 A. We used for 50 of them the United States Public Health method.

Q. What condition were they in when you received them?

A. They were passed through the machine and sealed.

Q. Sealed with paraffin?

A. Paraffined and the opening was sealed, yes—except, no milk.

The Master: Q. There was nothing in them?

A. No.

Mr. Gariepy: Q. What did you do after you got them, Doctor?

A. As soon as they came I subjected them to the bacteriological test to find out how many bacteria were inside, that I could recover from inside, by applying the regular standard methods for bacteria examination.

Q. What was that regular standard method for bacteria examination?

A. The regular standard method for bacteria determination at the time was that we took 100 cubic centimeters of water, opened the container—

The Master: You did a rinse test?

A. Did a rinse test, yes, I examined 50 containers that way. Then I had a little correspondence with 943 Dr. Arnold, so he raised a question as to the methods for counting bacteria, so I took another 50 and I poured directly into it without rinsing and whirled it around like this (indicating), and left it without opening it, to incubate, and then I opened it and took the gelatin out and tried to count the bacteria without diluting them with water, and it was suggested—

The Master: Q. Instead of rinsing with water?

A. I didn't rinse it.

Q. You were really rinsing it with this nutrient?

A. Yes.

The Master: Go ahead.

Mr. Schaefer: To make it clear to me, Doctor, how long did you leave the nutrient broth in it?

A. How long did I leave the agar in it?

Q. Yes.

A. Three days.

Q. Then it wasn't just a rinse?

A. No. I was interested a little more than mere control, I was interested in actual practice, and the rinse test as applied, the standard methods, they incubate the plates a short time. I incubated this a longer time. Then another 50, it was suggested by some workers that, 944 instead of rinsing it with 100 cubic centimeters, to use only 20.

Mr. Gariepy: Q. Sterile water?

A. 20 cubic centimeters of sterile water, shake it and then take 10 cubic centimeters out and make three plates out of that 10 cubic centimeters, reduce the rinse. 50 were examined that way. Then I applied the method that is recommended in the new standard ordinance for examining bottles, and that is using only 10 cubic centimeters and rinsing it, and in some cases I made plates, I used 5 cubic centimeters instead of 2 cubic centimeters, the standard method. I figured that brings out a little more the number of bacteria in there.

Q. Does plaintiff's exhibit 47 here show the result of your findings?

A. Yes, they are grouped together. I have another table, if anybody wants it, where I separated the methods.

Q. This was in March, 1939?

A. I think so, somewhere in March. I don't know what date. I would have to look up my notes.

Q. The first column is the number of containers?

A. Yes, sir.

Q. The second column is the number of bacteria found?

A. Total number of bacteria found in the whole container.

945 Q. Those are clear. I don't think it needs further elaboration.

A. All right.

Q. Have you had occasion to perform bacterial tests with regard to washed and sterilized bottles in the milk plants operating in the City of Chicago?

A. Yes.

Q. When did you do that?

A. In July.

Q. This year?

A. Yes.

Q. 1939?

A. Yes.

The Master: Q. Glass bottles?

A. Glass bottles.

Mr. Schaefer: Q. That sheet, Doctor, represents the results—plaintiff's exhibit 47—represents the results of the rinse tests conducted by you?

A. 47?

Mr. Gariepy: Q. Yes, 47.

A. Represents the results of the examination of the Pure-Pak Containers from Fieldcrest Dairies.

Q. Is it a rinse test, or what test?

A. It is a combination of the four tests, fifty examined by each of the four tests I described.

946 The Master: Q. You only described two that I remember. One was rinse test and the other one was by disintegration.

A. In one case I used 100 c. c., in one case I used 20 c. c. and in one case 10 c. c., reducing the amount. Here is the table, Mr. Schaefer, showing the different tests separately.

The Master: Let's not confuse things here. Introduce what you want and make a clear record.

Mr. Gariepy: I will have this paper marked as plaintiff's exhibit 47-A.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 47-A for identification.")

Q. Plaintiff's exhibit 47-A is an exhibit showing what with regard to the type of test, Doctor?

A. 47-A is a rinse test with 100 cubic centimeters, 50 containers.

Q. The first column?

A. Each container was rinsed with 10 cubic centimeters and all recovered water was plated.

Q. What does it next show?

A. The next 50 were rinsed with 10 cubic centimeters, and plated.

Q. The next column?

A. No rinse, and the nutrient gelatin was poured 946a in directly.

Q. Do those correctly show the results of these three tests?

A. I think so. They check pretty well. If I may correct my testimony, please.

Q. Yes.

A. In the third test we poured all instead of half of it. We poured all 10 cubic centimeters.

Q. And all of the 10 cubic centimeters?

A. Yes.

Q. You say "c. c." That says "m. l." Is that the same thing?

A. "M. l.", yes.

Q. Do you know the methods employed at the Fieldcrest Dairy with regard to the use of machine, in order to prevent contamination after running and filling of milk, Doctor?

A. Yes.

947 Q. What are those methods?

A. The machine is, of course, operated under inspection. It is washed and sterilized.

Q. How is it washed and how is it sterilized? Tell the Master.

A. When they get through the bottling, they take the machine apart, principally the main point to take apart is the filling compartment.

Q. Showing you plaintiff's exhibit 15-A, received in evidence, show the Master which parts are taken apart and sterilized and washed?

A. All parts that milk comes in contact with are washed.

Q. What is that? Describe that.

A. It is a reservoir about that big (indicating), it holds about thirty or forty—

The Master: Q. You are referring to the cylindrical object?

A. Milk is dropped and comes in contact with the machine here and is dropped in this cylinder here (indicating).

Q. "Here" don't mean anything.

A. This reservoir.

Q. It is the cylinder right beneath the second arrow from the left on plaintiff's exhibit 15-A?

948 A. Yes, sir.

Q. All right.

A. Then, over here the milk is measured; there are two measuring compartments or devices which measures a pint of milk and the bottle comes under here (indicating).

Q. No, don't say the word "here." The bottle comes under the cylinder?

A. Under the first one.

Q. Comes under the cylinder?

A. The bottle comes under the cylinder and a pint of milk is dropped in it and then is pushed about four or five inches further and another measuring device drops a pint of milk in it, making a full quart; then it goes from here (indicating), it is sealed, dated and goes out.

Q. At the left end of the machine?

A. Yes, sir.

Q. On this exhibit?

A. Yes. Now, in cleaning the cylinder or measuring device, anything that is removable is taken apart and washed in the usual way.

Q. What is the usual way?

A. The usual way is, first it is rinsed thoroughly with water.

949 Q. What kind of water?

A. Regular drinking water.

Q. Then what next is done after that?

A. Then it is taken apart and washed in a soap or alkali washing solution. Then it is rinsed again and then—

Q. Rinsed with what?

A. Water.

Q. Drinking water?

A. Yes, with drinking water. Then it is sterilized with chlorine solution.

Mr. Garipey: Q. At what temperature?

A. Room temperature. We use warm water and warm soapy solution to wash it.

Q. Is that done after each running and operation of the machine, they call it, each washing?

A. It is done at the end when they get through bottling of the supply of milk, it is taken apart and cleaned.

The Master: Q. According to the direction, is that done more than once a day, or once a week?

A. It is done at the end of each day or at the end of bottling.

Q. Once a day?

A. Yes. Sometimes in some plants they bottle cream and milk—

950 The Master: That is all right.

Mr. Garipey: Q. What do they do besides removing these removable parts and washing them? What other

things do they do with the machine to prevent contamination?

A. They open up the cooling unit, the lid opens up, and it is rinsed.

Q. With what?

A. With drinking water, all through, it is rinsed up to this point (indicating).

The Master: Q. What point is that? Mention it.

Mr. Gariepy: Q. Describe what that point is?

A. Up to the paraffining compartment.

The Master: Q. That is the portion of the machine at the right hand end?

A. Yes.

Q. Right near this clock or device?

A. Yes, sir.

Q. Or this tower on this machine?

A. Yes, it is the cooling unit.

Q. All right.

A. We rinse it with running water.

Q. What are we rinsing now, the cooling unit?

A. Yes, this here.

Q. All right.

A. And the milk does not come in here, they rinse it and after it is rinsed and cleaned they take a bucket
951 of chlorine solution and apply it all over the surface and sterilize it.

Q. Why do they have to sterilize the cooling unit? What is that for?

A. The cooling unit, the containers come out of the paraffining compartment and they travel along here (indicating).

Q. They travel to the left?

A. Yes.

Q. All right.

A. Through the cooling compartment, and the cooling compartment is used to cool the container so that the paraffin sets and hardens and there is a fan there inside to blow the cold air so that it aids in cooling.

Q. What cools the cooling unit?

A. Well—

Q. The air, or what—or is it ice?

A. It is not ice. I think they had better tell you exactly.

Mr. Rall: Refrigeration coils.

A. Yes, sir, refrigeration coils.

The Master: Q. What do they clean, a portion of the cooling unit through which the paraffin container travels?

A. They clean the whole thing, clean everything inside.

952 Q. I see.

A. The idea is this, the containers after they leave the paraffin, are open and the air surrounds it.

Q. Yes.

A. And that compartment ought to be sterilized.

The Master: Go ahead.

Mr. Gariepy: Q. This cooling chamber you are talking about is cleaned out only by the use of ordinary drinking water?

A. Drinking water and chlorine solution after they rinse it out.

Q. You said it is sterilized?

A. I used a commercial expression.

Q. Do you use that chlorine solution to sterilize that cooling chamber?

A. Commercially speaking, yes.

Q. All right.

A. The surfaces inside.

Q. The effect of this cleaning operation is to remove whatever air there has been in there, and after the cleaning solution is out, new air comes in?

A. Yes.

Q. And you have no way of knowing what that new air contains, do you?

A. Well, we carry on some tests on that point. I have a table.

953 Q. Of what the new air contains?

A. During the whole operation, how many bacteria there are in the air and how many will fall down. We made tests on that.

Q. Have you performed tests with regard to the bacteria count on the Pure-Pak container after it has been through the paraffin bath?

A. Yes.

Q. And before it is filled with milk?

A. Yes, sir.

Q. And before it enters into the cooling chamber?

A. Yes.

Q. And when did you perform those tests?

A. One of the exhibits gives it.

Q. Do you know the date?

A. Over a period of almost two years, now and then.

The Master: Q. What year?

A. The last two years.

Q. 1938 and 1939?

A. Yes, sir, two and a half years.

Mr. Gariepy: I will ask that this paper be marked as plaintiff's exhibit 49 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit 49 for identification.")

954 Q. Referring to this document marked plaintiff's exhibit 49 for identification, is this table the result of these tests you have performed?

A. Yes, sir.

Q. I show you plaintiff's exhibit 49 for identification. Does that show the result of these tests, Doctor?

A. That is these two tables, yes.

Q. On that sheet?

A. Yes.

Mr. Schaefer: Q. Are all of the tests over the last two and a half years there?

A. This was done during the year 1937.

Q. Exhibit number 49?

A. Mostly.

Q. Are the result of the 1937 tests?

A. Yes, sir.

Q. What do those tests show?

The Master: Q. Where were these conducted?

A. At our place at the University, when we had the machine there.

Mr. Gariepy: Q. That is the same machine that Fieldcrest Dairies are using at Chemung, Illinois?

A. Yes, sir, the same machine.

The Master: Q. Where did you get these containers?

955 A. We paraffined them ourselves, I picked them myself.

Q. Why does this say "bacterial * * * contents of 132 Pure-Pak paraffined containers from eleven different milk plants?" What do you mean by that?

A. I mean the first table here, that is paraffin is not on them, that is containers unparaffined, before they are par-

affined are sent in from eleven different milk plants all over the country.

Q. And you paraffined those yourself?

A. Yes, sir.

Q. And did the experiments on your own machine?

A. Yes, sir, and these were the containers.

Q. "These" don't mean anything.

A. Table 9.

Q. Containers at the bottom half of this exhibit, table 9, what are those?

A. Those were the containers we were using at the time, without milk; these we were using on this machine to bottle our own milk, the University milk, and in connection with it I took samples of the empty containers every day, here to there.

The Master: All right, go ahead.

Mr. Gariepy: Q. You plated these tests and these results shown on the sheet, Plaintiff's Exhibit 49 at the 956 top and the bottom, representing what you ascertained?

A. Yes, I did the work myself.

Q. Did you make a study of the bacteriological condition of the paraffin bath in this Pure-Pak machine.

A. Yes, sir.

Q. Where was the machine when you made that study and from what paraffin was it, at the Chemung Plant or at the University of Illinois?

A. That was at the Chemung Plant.

Q. When did you make that study?

A. This spring, in 1939—I forget the date.

Mr. Gariepy: I will ask that these two sheets be marked Plaintiff's Exhibit 50 for identification.

(Two typewritten sheets referred to were thereupon marked by the Reporter "Plaintiff's Exhibit 50 for identification.")

Q. I show you Plaintiff's Exhibit 50 for identification. Have you seen that before?

A. Yes, that is my table.

Q. All right, does this table represent your study of the bacteriological condition of the paraffin bath with the Pure-Pak Machine?

A. I took the samples myself.

Q. At the University of Illinois?

957 Q. Wasn't that in March of 1939, about the 24th?

A. Yes, sir.

Q. About the 24th?

A. Yes, sir.

Q. What does this show with regard to the bacteriological condition of the paraffin bath?

A. It shows the paraffin was sterile, I couldn't find any bacteria in the paraffin bath.

Q. Was that taken under usual working conditions of the plant?

A. Yes, this was taken during the operation of the machine while the milk was being bottled and the time all samples were taken right here (indicating).

Q. Shown in table number 1?

A. Yes, sir.

Q. Your remarks as result of each sample is shown on the right hand side, under "Remarks" at the start for whipping cream, and so on, down to the end—bottle finished?

A. Yes.

Q. Have you made a study of the bacteriacidal property of paraffining?

A. I have.

Q. When did you do that?

A. I have been carrying on a study for two and a 958 half years on that subject.

Q. Was that at the University of Illinois, too?

A. At the University of Illinois.

Q. When did you last perform any tests to ascertain bacteriacidal property of paraffining?

A. During the last month.

Mr. Gariepy: I will ask that this paper be marked Plaintiff's Exhibit 51 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 51 for identification.")

Q. I show you Plaintiff's Exhibit 51. Does that represent the result of your study and experiments and research on the bacteriacidal property of paraffining?

A. Yes.

Q. Did you tell in the record when it was done?

A. It was done the last two weeks of last month, August, 1939.

Q. Explain to the Master what Plaintiff's Exhibit 51 shows, concerning that bacteriacidal effect?

A. The exhibit was laboratory experiment in which

strips of paper board were inoculated again by being dipped in bacteria suspension; then they were paraffined in the laboratory and then after paraffining they were 959 again disintegrated in the same way and the number of bacteria was determined that remained on the paper under the paraffin and in the body of the paper, on the whole strip of paper.

Q. How did you ascertain the number of bacteria? What did you do?

A. We took a strip and disintegrated it, reducing it to pulp, in water and then we plated the plaque from the pulp and water, making ten plates from that strip of paper, using two cubic centimeters of the mixture in each plate, that is of the pulp and water, disintegrated pulp; the plaque was taken up in the pulp in 200 cubic centimeters of water.

Q. Key numbers under plaques, you have "W-N-P."

A. Yes.

Q. What do you mean?

A. "W" means that the plaque was paraffined while wet.

Q. "W P," number 2 * * * in the left hand column?

A. "W" means the plaques were wet when they were disintegrated or paraffined, and "N" means when the plaque was not paraffined, and "P" means plaque paraffined.

Q. You followed this abbreviation of key numbers you have here?

960 A. Yes, sir.

Q. In describing each one of these tests and the subject as you put it to the test?

A. Yes, sir.

Q. What does your experiment as shown on the tables under tests 1, 2 and 3 in Exhibit 51 show with regard to the bacteriacidal property of paraffining?

A. It shows that if you paraffin inoculated paper at 170 degrees F. for 15 seconds, and the artificial contamination of paper is very heavy, few of the bacteria will survive paraffining.

Q. Explain what you mean by "artificial contamination of the paper?"

A. Artificial contamination of the paper was done by taking a strip of paper and dipping it in bacteria suspension having many millions of bacteria per cubic centimeter of the suspension.

Q. Have you performed tests with regard to ascertaining if there is any contamination of the milk by the Pure-Pak machine when practically sterile milk was bottled?

A. Yes.

Q. And when did you do that?

A. That experiment was done in the summer of 1937.

961 Mr. Gariépy: I will ask that this sheet be marked Plaintiff's Exhibit 52 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 52 for identification.")

Q. I show you Plaintiff's Exhibit 52 for identification. Does that represent the result of your experiments on that?

A. Yes.

Q. Where were those tests conducted?

A. Those tests were conducted in our own milk plant at the University of Illinois.

Q. Was that under ordinary working conditions?

A. This was a special experiment in that we used milk which was almost sterile; otherwise, everything was done as in ordinary handling of milk.

Q. Why did you use milk that was practically sterile?

A. We found in paraffining tests that the number of bacteria contributed by the machine to the general milk was so small that we had difficulty to determine it by examining the regular milk, therefore I decided to use milk which had only very few bacteria.

Q. How much contamination did this test show came from the Pure-Pak Machine?

962 A. Occasionally bacteria got in in the milk.

Q. How much, in the number of tests that you ran, how much bacteria did you find that the machine contributed to?

A. The first milk poured in the reservoir, bottling reservoir of the machine, had 33 bacteria, roughly. The first bottle filled had about 40. One bottle filled had about 6. And from that time to the rest of the bottling, it varied from 6 to 20, total number of bacteria in the milk.

Q. It varied from what?

A. From about 5 bacteria to 20.

Q. And how much had the machine contributed to cause that increase?

A. Well, the milk had, I would say, about 5 to 10 bac-

teria per cubic centimeter to start with, and the difference between that and the counts in the milk indicates the number of bacteria that were picked up by the milk through bottling.

Q. What machine did you do this with?

A. We had a Pure-Pak Machine, the same machine that finally was bought by Dean Milk Company.

Q. At the plaintiff's plant at Chemung, Illinois, Fieldcrest Dairies?

A. Yes, sir.

963 Q. That is the same machine?

A. Yes.

The Master: Q. Where did you conduct the experiments on the machine?

A. These experiments were conducted on the machine at the University of Illinois.

Q. That machine was moved bodily to the Dean Milk Plant?

A. Yes.

Q. Was that machine a new one at the time you conducted the experiments?

A. Yes. We used it, I should say, about two months.

Q. To whom did it belong during the time that you were conducting experiments?

A. To the Pure-Pak people.

Q. They moved it from the University of Illinois to the Dean Milk Plant at Chemung?

A. That is my understanding. They took it out.

Q. You have answered it.

A. Yes.

The Master: Go ahead.

Mr. Garipey: Q. Does this amount of contamination present a health problem, Doctor, from a milk sanitarian's point of view?

A. It does not.

Q. Have you any opinion as to whether or not the fact that the machine on which these tests were run was a
964 new machine would cause the result to be any different than if the machine had been a machine that was a year old?

A. I have to give my opinion.

Q. What is your opinion?

A. My opinion is that it would make no difference.

Q. And, why?

A. If they used the same method of cleaning and sterilizing and handling, it would make no difference.

Q. In other words, you would not expect any greater amount of contamination from an old machine than you would from this machine, if the same methods of sterilization are employed after each filling?

A. No.

Q. Have you made any similar tests with regard to contamination in the matter of the machinery and equipment used in filling glass milk bottles?

A. Yes.

Q. When and where?

A. I have been making tests right along in our plant and in other milk plants.

Q. When did you do that, Doctor?

A. The last thirty years, every now and then.

Q. When is the last time?

A. We did last month, I think we were working on some problems in our own milk plant.

965 Q. Last month?

A. Yes.

Q. You were working on some problems in your own milk plant?

A. Yes, sir.

Q. From that experience was the degree of contamination that you found in the examination of the Pure-Pak Machine higher or lower than what you found in examination of the equipment used in filling of the glass bottles?

A. I would say this, that there would be a tendency for the filling machine, for glass bottle filling, to have more contamination.

Mr. Schaefer: I move to strike that as not responsive to the question.

The Master: Read the question back.

(Question read by the Reporter.)

The Master: I will let it stand.

Mr. Garipey: Q. Have you performed any tests with regard to the number of bacteria enmeshed in the paper caps used in the filled glass bottles?

A. Yes.

Q. When did you perform those tests?

A. That particular test was performed in March of 1939.

Q. Where was it performed?

966 A.. At the University of Illinois.

Q. Where did you obtain the caps from?

A. The caps were sent to us.

Q. By whom?

A. By Mr. Dean, Jr.

Q. Caps from what dairies were they?

A. One I recall was Bowman's. There were caps not only from Chicago but from other districts.

Q. Take Chicago, only; let's stay with Chicago.

A. I recall there were some caps from Bowman's; there were some caps from Wincel Dairy.

Q. How do you spell that?

A. Wincel.

Q. Do you remember any other names of the dairies?

A. No, I don't recall now.

Q. Were they the standard caps used in the City of Chicago, today?

A. Yes.

Mr. Gariepy: I will ask that this paper be marked Plaintiff's Exhibit 53 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit 53 for identification.")

Q. I show you Plaintiff's Exhibit 53 for identification, with regard to the figures in the first

968 The Master: Q. Were those caps which had been used?

A. No.

Q. They were just blank caps?

A. Blank caps that had not been used for anything.

Mr. Gariepy: Q. Were they paraffined or unparaffined?

A. They were paraffined partly.

Q. Partly?

A. They received some treatment, paraffining treatment.

Q. There was a greasy feeling on the outside, that slippery, oily feeling, is that it?

A. Yes, sir.

The Master: Q. On both sides?

Mr. Gariepy: Q. The under-side and the top-side?

A. I think so. I am not one hundred percent sure. I think they were just dipped in paraffin.

Q. Have you performed research work and tests to ascertain the bacteriological condition of paper milk containers, Pure-Pak Containers, before being paraffined?

A. Yes, sir.

Q. When did you do that?

A. That was done in the spring of 1937.

969 Q. Where was it done?

A. It was done at the University of Illinois.

Q. On this Pure-Pak Machine that you had down there then?

A. Yes.

Q. How did you perform those tests and where did you get the paper from?

A. The paper was the same container paper, or the containers that we used, that were supplied to us and we used for milk.

Q. In running the dairy, at the University?

A. Yes, sir.

Q. Were these paraffined or unparaffined?

A. These containers were taken and passed through the machine, to the paraffining well. They were not paraffined.

Q. What do your tests show with regard to the bacterial contents of those containers, unparaffined?

A. We examined 128 of those containers and we found that 121 of them had a small number of bacteria, a smaller number of bacteria than the standard for glass bottles.

Q. What is the standard for glass bottles?

A. The standard for the quart glass bottles is 1000 bacteria in the bottle.

970 Q. How much less did these have than the standard in the glass?

A. In 25 of them we recovered no bacteria.

Mr. Schaefer: Q. Was that a rinse test, Doctor?

A. That was standard method rinse test. We found no bacteria in 25. In 25 we found no bacteria. In another 25 we found one colony on one of the plates, which would be 50 bacteria according to the calculations. I don't think it is necessary to go through it.

Mr. Schaefer: I wish you would go through it.

Mr. Gariepy: Take 75.

Mr. Schaefer: Read the next 25 back, from the bottom, that will be satisfactory to me, at the end of the higher counts.

The Witness: The last column I will take.

The Master: Let's get some place.

The Witness: 5 containers had more bacteria than the standard, and the rest of them had less.

Mr. Gariepy: Q. Out of how many?

A. Out of 128.

Mr. Gariepy: I will ask that this sheet be marked plaintiff's exhibit 54 for identification.

(Typewritten sheet referred to was marked by the Reporter "Plaintiff's Exhibit 54 for identification.")

971 Q. That is referring to plaintiff's exhibit 54 for identification, that the reporter is marking now?

A. Yes, sir.

Q. Have you performed any research work concerning adhesive used in sealing the containers?

A. Yes, sir.

Q. Bacterial condition of the adhesive used in sealing of the containers?

A. Yes, sir.

Q. When was that?

A. Last spring—1939.

Q. Where?

A. At the University of Illinois.

Q. That is on the Pure-Pak Container?

A. Yes.

Q. Was that under normal working conditions?

A. These samples?

Q. Just answer the question, was that under normal working conditions at your dairy down there?

A. The adhesive.

Q. Will you just answer the question, was it under normal or abnormal working conditions? Was it some concocted straw man that you set up to test this adhesive, or was it taken in the natural conditions used in the 972 Pure-Pak Containers every day?

A. The samples were from the adhesive used for commercial sealing.

Q. From whom did you obtain them?

A. They were sent to us from the factories.

Q. What factories were they sent from?

A. I don't recall, now.

The Master: Q. Who sent it to you?

A. At my request.

Q. But, who sent it to you?

A. The factories that make the adhesive.

Mr. Gariepy: Q. Is it the Arabol Company, in Cicero?

A. I don't remember.

Q. You refresh your memory after lunch, because I want to know that, Doctor.

A. Yes.

Q. There has been some question raised about adhesives here, and I want to clear it up.

A. Yes.

Q. After your inspection and acquaintance and use of the Pure-Pak Machine, have you an opinion as to whether or not there is an occasion or an opportunity for the Pure-Pak Container to become infected after it leaves the 973 paraffin bath and goes through the filling chamber?

A. My opinion is that it is an exceptionally well protected machine, protecting the unfilled containers before they are filled.

Q. Have you an opinion as to whether or not this Pure-Pak Container or Containers may be contaminated on the inside by the handling of the store clerk or the milk man as they deliver them?

A. Yes.

Q. What is your opinion?

A. My opinion is that containers can not be contaminated that way, that the milk can not be contaminated that way.

Q. Have you an opinion as to whether or not there is an opportunity for absorption of milk in the case of glass bottles with the paper cap?

A. The paper cap absorbs some milk.

Q. Have you performed tests on that?

A. Not myself—it is not bacteriologically.

Q. Have you performed tests with regard to absorption in the Pure-Pak Containers?

A. Not myself.

Q. You did not do that?

A. Professor Tracy did some of that.

974 Q. Have you an opinion as to whether or not there is a health hazard existing in the matter of the use of the paper caps as now being employed and used in the City of Chicago?

A. No.

Q. At this time?

A. I think there is not.

Q. There is no health hazard?

A. I don't think so.

Q. How many hours of time have you devoted to this research work with regard to these Pure-Pak Containers, Doctor?

A. We carried on the work now on this whole subject for two years and eight months. The Pure-Pak Containers

took pretty nearly half of the time devoted to this study and I would say I spent close to half of my time during that time.

Q. Is there a standard method of milk analysis?

A. Yes.

Q. Did you use that standard method in this research work that you have described?

A. Where ever I go I try to improve it.

Q. Do you consider the counts that you have obtained in using this standard milk analysis method with regard to ascertaining the sanitary aspects of the Pure-Pak 975 Container—are those results high or low, with regard to bacterial count?

A. They are very low.

Mr. Schaefer: Excuse me. You are talking about the bacterial count of milk, are you not?

A. No.

Q. What?

A. Containers.

Q. I understood the question to refer to standard methods in milk analysis.

Mr. Gariepy: I asked him if there was such a method of examining milk and examining the bacteria and the board, both.

The Master: Read the question.

(Question read by the Reporter)

Mr. Gariepy: Q. You use the paper bottle in your own home?

A. Yes, sir.

Q. Do you use the glass bottle?

A. Yes, sir.

Q. Have you found any objection from a practical standpoint with regard to the use of the paper bottle?

A. No.

Q. Are you familiar with the United States Public Health Standard Milk Ordinance?

976 A. Yes.

Q. How long have you been so familiar?

A. Ever since it has been put out.

Q. What, in your opinion, are the main objectives from a health and sanitary standpoint of all of these milk ordinances and rules and regulations?

A. The goal is to deliver to the consumer milk of high quality, milk and milk products—and high quality means

clean, low-bacteria counts and freedom from disease bacteria.

Q. When is a milk container considered by milk sanitarians to be sanitary?

A. When it meets the standard prescribed.

Q. Which is what?

A. It varies in the United States Public Health Milk Ordinance, the standard is one bacteria per millimeter capacity.

Q. How much per quart?

A. 1000.

Q. Have you an opinion as to whether or not that is sanitary, these Pure-Pak containers, are sanitary?

A. Yes.

Q. After your two years of study and research work?

A. Yes, sir.

Q. What is your opinion?

977 A. My opinion, based on the various studies I made, is that there is an improvement in the sanitary condition of the milk container, over the glass.

The Master: That is not the question. Read the question.

(Question read by Reporter)

Q. Is it sanitary, or what?

A. It is sanitary.

Mr. Gariepy: Q. Describe the merits of the glass milk bottle as it is commonly used in the City of Chicago from a sanitary standpoint?

A. The glass milk bottle, when introduced into the dairy industry, has been a great improvement over the milk in bulk. I think it is sanitary, if the procedures to take care of it are carried out, as recommended.

Q. Describe the merits of this Pure-Pak Container from the same point of view?

A. The Pure-Pak Container is sanitary. A large percentage of them are, according to the standard tests, free from bacteria. Only once in awhile we find one just before filled with milk that it will not meet the standard requirement as to the number of bacteria. In most cases the number of bacteria in the container—in the paraffined empty container—is extremely small. Shall I go into this
978 further?

Q. Go ahead, finish your answer.

A. As far as I am able to study and figure out, it has a

thoroughly protected pouring lip, which is one of the points in a milk container that has been stressed.

Q. Have you performed tests with regard to the pouring lip, Doctor?

A. Yes, sir.

Q. From which you have drawn and adopted this conclusion?

A. Yes, sir.

Q. How long have you performed tests to determine the sanitary aspects of the pouring lip?

A. We performed a number of these tests. The last one we performed this spring.

Q. 1939?

A. Yes, in the spring of 1939.

Q. Was that at the University?

A. At the University.

Q. On the Pure-Pak Container, the same container that the Master has in his hand here now?

A. Yes, sir. These containers were filled with milk, sealed and sent to us. When they arrived, we then performed the experiment to determine the protection of the pouring lip.

979 Q. Who sent them to you?

A. Fieldcrest Dairies, at our request.

The Master: Q. What is this blue that is right inside of this pouring lip and on the angles on the inside of that?

A. This is a sample, to show an answer to problem number two that Dr. Arnold suggested to carry out, and this is what happens when the container is treated with methyn blue. This container was filled with milk, and after twelve hours, I think it was, in storage the milk was emptied and rinsed out and one percent methyn blue solution was poured in and kept there thirty minutes and poured out and rinsed with water.

Q. What was the purpose of that?

A. To determine to what extent penetration of the dye will go into the body of the paper, or, I suppose, the thoroughness of paraffining.

Q. Did you perform the same tests with this blue and this dye with regard to ice-cream containers and paper bottle caps?

A. Yes.

Mr. Gariepy: Q. I show you here a small one-quarter pint University of Illinois Department of Dairy Hus-

bandry Container. Do you use that to sell ice-cream
980 in?

A. Yes, sir.

Q. Did you apply the same tests on this small container
that you did on the large container, Dean's Milk Pure-Pak
Container?

A. Yes, sir.

Q. What does it show with regard to the application of
the blue on the inside?

A. The treatment of paraffining, if any, was very scant.
In other words, the whole surface absorbed the methlyn
blue.

The Master: Q. Of the ice-cream container?

A. Of the ice-cream container.

Mr. Gariepy: Q. What about these caps I show you,
were they submitted to the same tests with regard to this
blue that you tried on the Pure-Pak Container?

A. Yes, sir.

Q. What does it show with regard to the paraffining
process applied in those?

A. They show that the methlyn blue is absorbed also
in these containers—in these discs, rather.

The Master: Q. Did Dr. Arnold ask you to do that?

Mr. Gariepy: Q. Did Dr. Arnold ask you to do that?
Answer the question.

A. Not this one, no.

981 Q. He just asked you to try it on the other one?

A. Just on the container for milk.

(Discussion off the record.)

Mr. Schaefer: Q. Dr. Arnold did not ask you to do any
of those. Those were all covered by the stipulation,
Doctor, and we agreed to take your word on it?

A. Yes, sir.

Q. And this was not at Dr. Arnold's request at all?

A. No, sir.

Mr. Schaefer: Just to keep the record straight.

Mr. Gariepy: Q. These were done as a result of that
conference with Dr. Arnold, concerning such procedures?

A. Yes, sir.

Q. In the case of the Dean Milk Containers the methlyn
blue was poured into the container?

A. Filled.

The Master: Q. The markings left after the methlyn
blue was poured out are only on the angles?

A. Yes.

Q. Or on the folds, you might say?

A. Yes.

Q. And the methlyn blue left no appreciable stain on the walls or the inner walls of the container?

982 A. No. That is right.

Q. None of the blue seems to have come through the container?

A. No.

Q. While in the case of the ice-cream carton, ice-cream container, the blue stuck to the whole inner wall of the container?

A. It shows the covering here is not as thorough.

Mr. Gariepy: Q. What about the drinking cup? This is a little Dixie drinking cup.

A. The problem is the same.

Q. Is that a paraffined cup, too? Feel of it.

A. It has some paraffin treatment, yes, sir.

Q. Did you fill this up, by the way, half full with the blue?

A. I think we filled it up.

The Master: Q. The blue on that shows to have penetrated at the lower half of that paper drinking cup, doesn't it?

A. Yes, sir.

Mr. Gariepy: Mark these two sheets plaintiff's exhibit 55 for identification.

(Two typewritten sheets referred to were thereupon marked by the Reporter "Plaintiff's Exhibit No. 55 for identification.")

983 Q. Have you performed some research work concerning bacterial contamination of milk on the pouring lips of glass bottles, Doctor?

A. Yes, sir.

Q. When did you do that?

A. This particular experiment was done in July of 1939.

Q. Where was it done?

A. It was done at the University of Illinois.

Q. Did you resort to artificial means with regard to contamination, in performing this test?

A. Yes, sir.

Q. What were those means that you used?

A. We prepared bacterial suspension again, put it in an atomizer and sprayed the bottle, the bottle was filled.

with milk before this and a cap put on and then we spray the bottle.

Q. Continue, Doctor.

A. We also infected with infectious solution opened, in spray bottles, then we poured the milk out and tried to determine whether any bacteria were present in the milk after it was poured out.

Q. What did that test show, Doctor, concerning the number of bacteria present?

A. The test showed that when bottles were opened 984 with contaminated hands, some of the pourings from the bottle had the germs in, when the pouring lip, the outside rim of the bottle was contaminated.

Q. That is the glass?

A. Yes.

Q. Proceed, Doctor?

A. Then we found in all cases presence of the germs that were put on the rim, when we contaminated the inside of the rim, above the paper disc, then, of course, again we found bacteria present. Then we also took two bottles, one of them with the ordinary cap and one of them with the certified dairy hood in addition on, and submerged them for twenty-four hours in a bucket of water, containing the bacteria, and then took them out and rinsed them off and sterilized them on the outside and we found that some of the bacteria from the suspension seeped in in the milk.

Q. Did you perform tests concerning the sanitary aspects of the pouring lip on the Pure-Pak Container?

A. Yes.

Q. When?

A. A number of times.

Q. When, Doctor? This year or last year?

A. We did some tests this year, this summer.

Q. This year?

A. Yes, sir.

985 Mr. Gariepy: I will have this paper marked as plaintiff's exhibit 56 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 56 for identification.")

Q. Where were these conducted, at the University?

A. Yes, sir.

Q. As shown on plaintiff's exhibit number 56 for identification?

A. Yes.

Q. Were these on containers sent to you by Fieldcrest Dairies, or those that you used in your dairy down there, Doctor?

A. My recollection is that they were sent to us.

Q. Sent to you by Fieldcrest Dairies?

A. Yes.

Q. What tests did you perform to ascertain the sanitary aspects of and sanitary qualities of the pouring lip of the Pure-Pak Container?

A. In this experiment we took—may I correct it, please?

Q. Yes.

A. In this particular table, it was on containers in our study at the University.

Q. All right.

986 A. After they were sealed in and bottled and sealed by the machine.

Q. Yes.

A. But not paraffined.

Q. What did you do?

A. We cut out the area (indicating).

Q. Indicating all around the pouring lip, on the outside?

A. The pouring lip, and again disintegrated the paper into pulp and plated the pulp.

Q. You cut this portion out and disintegrated this portion, did you, Doctor?

A. Yes, sir.

Q. Put it into the disintegrator with sterile water?

A. Yes, sir.

Q. Then what did you do, when you took the count?

A. The count was per gram of the paper, including the pouring lip; it varied; the highest count was 33 per gram of the paper. If I may add, the meaning of it was that it was not any higher than any other part of the container.

Q. Is that, in your opinion, a sanitary condition of the pouring lip?

A. Yes.

Q. Doctor, did you perform some other or additional tests with regard to the pouring lip on the Pure-Pak Container by applying an atomizer?

A. Yes, sir.

Q. When did you do that?

A. That was done in April or March, 1939.

Q. Where was it done?

A. It was done at the University.

Q. Who did it?

A. I did.

Q. Where did you get the containers that you performed this test on?

A. The containers were paraffined and filled with milk and were sent down from the Dean Milk Company.

Q. What did you do when you got those containers, filled with milk?

A. It was these containers that we sprayed with the bacteria, we inoculated, infected this part by spraying with the atomizer.

The Master: What do you mean by "this part"?

Mr. Gariepy: Q. Indicating the gable part, or around the pouring lip?

A. The side where it has a pouring lip was sprayed with heavy bacterial suspension by means of an atomizer, depositing bacteria of a known type on it.

Q. Then what did you do after you sprayed it?

988 A. Then they were opened and milk poured and the milk was examined for the presence of any bacteria that we put on the outside.

Q. What did you find?

A. We examined in one test, 20 containers.

Mr. Gariepy: I will have this sheet marked as plaintiff's exhibit 57 for identification.

(Typewritten sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 57 for identification.")

Q. You are now referring to plaintiff's exhibit number 57 for identification?

A. Yes, making four plates, from the pouring of milk, making altogether 80 plates, and they were all free from bacteria except one. One plate had one of the bacteria present.

Q. Would you say that shows a sanitary or an unsanitary condition of the pouring lip?

A. That shows a sanitary condition of the pouring lip.

Q. Doctor, did you inoculate the containers further by the operator dipping his hands in the suspension, rubbing the surfaces inside of the containers, to ascertain whether they would take the bacteria and the bacteria would survive, or not?

A. Yes, sir.

989 Q. When did you perform such a test that you have described by the operator dipping his hands in the suspension, rubbing the surfaces inside of the containers?

A. This was done in the spring of 1937.

Q. Where was it done, Doctor?

A. At the University of Illinois, while we had the machine there.

Q. What was the bacteria in which the operator had his hands submerged and contaminated?

A. It was the bacillus prodigeosis.

Q. How much of that did you have in the bucket you put your hands in?

A. It varied from several billion, invariably it would be two or three million bacteria per millimeter of the suspension.

Q. What did you do when your hands were put in there and contaminated with the bacteria, what did you do next, Doctor?

A. Next the containers were passed through the machine to be treated, paraffined and sealed.

Q. Your hands were put into the unparaffined containers, or blanks?

A. Yes, sir.

Q. Then they were put in the machine and they were run through paraffin, in the bath?

990 A. Yes, sir.

Q. And down through the cooling system and filled?

A. Yes, sir.

Q. Then you took the count on them?

A. Yes, sir.

Q. What did the count show?

A. The count showed that if you inoculate these containers, the surface of these containers, with heavy bacterial suspension, if you inoculate the containers by dipping your hand in a bacterial suspension containing several hundred million bacteria and then inoculate the containers by rubbing the hands on the inside and then paraffining the containers in the usual way, and seal it, then take it in the laboratory and examine it for the presence of surviving bacteria, we found—

Mr. Gariepy: I will have this sheet marked as plaintiff's exhibit 58 for identification.

(Typewritten sheet referred to was thereupon marked

by the Reporter "Plaintiff's Exhibit No. 58 for identification.")

Q. You are reading now from plaintiff's exhibit number 58, which are your figures and the result of this test?

A. Yes, sir.

Q. All right, what did you find?

991 A. In one test we treated 300 containers. 100 were paraffined at 160 degrees F. 91 were negative and 9 showed the presence of the bacteria. 100 containers were paraffined at 170.

Q. Paraffined at 170 degrees F.?

A. Yes, paraffined at 170 degrees F.

Q. Yes.

A. 99 showed the absence of bacteria, and one showed the presence of one or more bacteria. Those paraffined at 180 degrees F., 98 were free from bacteria and two showed the presence of one or more colonies. Shall I read this?

Q. The right hand column shows the number of what?

A. Bacteria in suspension.

Q. 250 million?

A. Yes, sir, 250 million per m.l. The last of this type of experiments, number five, we inoculated and treated 600 of these containers. 200 of them were paraffined at 180 degrees F; 200 of them were paraffined at 185 degrees F; 200 of them were paraffined at 190 degrees F. Suspension 200 million bacteria per m.l. Of all those, the 600 containers were free from bacteria, as determined by our method.

Q. What does that mean with regard to the effect of paraffining process on the paper board in the paraffin
992 bath?

A. It means this, that when you inoculate the containers very heavily with millions of bacteria and pass them through immediately some of the bacteria may survive.

Q. Did you also inoculate the same container with your hands on the outside?

A. Yes.

Q. And what did the result of that test show, after you had inoculated the container that way?

A. We tried to reproduce the normal handling of the containers as they are handled under ordinary conditions, in actual operations, so that the operator infected his hands by dipping his hands in bacterial suspension.

Q. Go ahead, Doctor.

A. And when all of the loose water dripped off of them,

we took a bundle of them from the carton in which they were shipped to the milk plant and straightened them and put them on the rack, on the machine, and from that point on the machine handled them.

Q. Then, when they got through the machine, what did you do with them?

A. They were not filled with milk. They were 993 sealed, paraffined, went through the machine and we took them into the laboratory and examined them.

Q. What did you find?

A. We found this situation: 300 containers inoculated this way, bacteria suspension 100 million, paraffined at 170 degrees F., 180 degrees F. and 190 degrees F., 100 each—

Q. That is 100 each paraffined at 170, 180 and 190 degrees F., respectively?

A. Yes.

Q. Proceed.

A. We did not find a single container containing the inoculating bacteria. Another test, we again ran 300 containers, paraffined at 170 degrees F., 180 degrees F. and 190 degrees F., 100 each, and again we found no bacteria in the containers. The last test, we inoculated 600 containers the same way, 200 we paraffined at 170 degrees F., 200 were paraffined at 180 degrees F., and 200 were paraffined at 190 degrees F.

Q. What did that show?

A. Paraffined at 170 degrees F., 200 containers were free from bacteria. 200 of the containers paraffined at 180 degrees F. were free from bacteria and 199 of the containers paraffined at 190 degrees F. were free from 994 bacteria. On one of the containers paraffined at 190 degrees F. there was one colony of the red organism.

The Master: O. That is in the case where the bacteria was put on the outside?

A. Yes, and they touched the rim or did more, it is in a pan and he takes them and he had touched the ring.

Mr. Gariepy: Q. That is the inside flaps of the bottle, before they are filled and sealed?

A. Yes.

Q. Outside or inside, Doctor?

A. Here is the way they take them, he touches it (indicating).

The Master: Q. The experiments were conducted before the containers were actually put up in the form that they are in when they contain milk?

A. Yes.

Q. They were just flat?

A. He takes them, and in a regular operation he straightens them out and puts them up in the rack.

Mr. Gariepy: Q. He straightens the edges up so they will go into the machine evenly?

A. Yes.

995 Q. On the rack?

A. Yes. We just asked him to do it as he does it in feeding the machine.

Q. That is the regular function?

A. Yes.

The Master: Do you want to stop here?

Mr. Gariepy: Yes.

The Master: Have you finished?

Mr. Gariepy: I think so.

The Master: We will adjourn until 2:00 o'clock.

(Thereupon, recess was taken until 2:00 o'clock, p. m. on the same day, September 12, 1939.)

996

• • (Caption) • •

Tuesday, September 12, 1939,
2 o'clock p. m.

Met, pursuant to recess.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

997 Mr. Gariepy: If the Master please, Mr. Woodman has been preessed for time to make some inspections since he was called away on that funeral. He is here and we can only call him this afternoon. I have asked Mr. Schaefer's permission to proceed with him now and defer Dr. Prucha's examination.

The Master: How long will he be?

Mr. Gariepy: I won't be very long with him. I have just a few questions with him.

The Master: It is satisfactory to you, Mr. Schaefer, to have Mr. Woodman testify now?

Mr. Schaefer: Yes, that is satisfactory.

The Master: All right.

M. J. WOODMAN called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. What is your name?

A. M. J. Woodman.

Q. What is your address?

A. 1123 Noyes Street, Evanston, Illinois.

Q. What is your business or occupation?

A. I am with the health department there, food and dairy.

998 Q. What department of the health department?

A. Food and dairy.

Q. How long have you been in that department?

A. Twenty-four years.

Q. How long have you been connected with the milk industry?

A. About 60 years.

Q. How old are you?

A. I was born on a dairy farm. We made milk and shipped it to Chicago years ago. That is what I meant when I said I was in the milk business so long. Then I came to Chicago or to Evanston and bought out a milk route and retailed milk in those days, until I went into the health department. That is how I happen to figure up the number of years I gave you.

Q. What are your duties in the health department?

A. In charge of food and dairies and the milk supply of Evanston.

Q. You use the Pure-Pak container that the Fieldcrest Dairies sells milk in up there?

A. We have those delivered up there, yes, sir.

Q. How long have they been used in Evanston?

A. Since the first of January.

Q. This year?

A. Yes.

Q. What research work or check-up do you do on those containers to ascertain their sanitary qualities and
999 sterility qualities?

A. We test the milk as delivered to the consumer weekly. We also make a test of the sanitary condition of the container as it is ready to deliver milk in. They send cases to us, that is, of the packages.

Q. And how often are they sent to you by the Fieldcrest Dairies, to check up on the board?

A. We started checking the first of June and they have been delivered there practically every week.

Q. And are these checks the rinse tests?

A. The rinse tests, yes, sir.

Q. How often do you perform the tests on the milk that comes in the containers?

A. Weekly.

Q. Have you the results of those check-ups and those tests on the milk and on the board with you?

A. I have the check-up on the board. I did not bring my check-up on the milk supply. I didn't know you wanted that. But I have that in my head. I can give you that.

Q. Are these tests on the board, as the samples are delivered to you every two weeks by the Fieldcrest Dairies, conducted in your own laboratory?

A. They are, in the Evanston laboratory.

Q. And under your supervision and control?

1000 A. Under the supervision of the chemists of Evanston.

Q. I show you a carton box of brown paper, which has the title, "Evanston Board of Health, attention of Mr. Woodman." Is that the way you receive the sample from Fieldcrest Dairies every two weeks?

A. It is, yes, sir.

Q. And these other ones that are delivered to the laboratory.

A. Those are the ones that are delivered to the laboratory, through me, to be tested.

The Master: Let the record show that counsel is showing the witness a carton containing something.

Mr. Gariepy: Q. How many blanks are usually in those cartons?

A. There are twelve. Six quarts, three pints and three half-pints that would have milk or cream delivered in them.

The Master: Q. These are just flat?

A. No. These are set up ones, already paraffined, ready to be filled.

Q. I see.

A. Ready to be filled. We have them sent to us that way for testing.

Mr. Gariepy: Q. They are paraffined?

A. They are paraffined and ready to be filled, but in place of filling them they simply put them in the 1001 machine and send them out to us that way.

Q. Will you give us the results of your checks since you began checking these in June, 1939?

A. These are the only two companies. Here are the Fieldcrest.

Q. This is the Fieldcrest?

A. These are Fieldcrest, yes.

Q. Do you also permit the use of other paper containers in Evanston?

A. We do.

Q. What are the names of those containers?

A. Those are put out by the Bowman Dairy Company and the Borden Dairy Company since the first of January.

Q. Will you look at the group of papers, yellow slips here which you handed me and placed on the table, and tell me whether those are your original entry records concerning tests on this paper board?

A. These are the original entries as delivered to me by the city chemist of Evanston, as we have tested them out.

Q. What do they show with regard to the bacteria count on, first, the quart containers?

A. I put all the quarts and pints in together. They are all together here.

Q. What do they show?

1002 A. Here are 101 samples taken. Is that what you mean?

Q. Yes.

A. Thirty-three per cent of these containers with the rinse method show zero, that is, no growth at all. Twenty-nine show 100 or less. That is 29 per cent. Twenty show a bacteria of 100 to 500. Twelve samples out of the hundred show from 500 to a thousand bacteria. Seven out of the hundred show over 1,000. One thousand is the standard for containers, bottles and glasses, empty containers, ready to be filled. One thousand is the standard set by the U. S. Code.

Q. Do you know offhand the bacteria count you found in cartons of milk from Fieldcrest Dairies taken from stores at random from time to time in Evanston?

A. I do.

Q. And what has been the bacteria count in those quart containers, we will say?

A. They ran from 4,000, I believe. The highest this year has been 255,000 in the milk. That is very consistent with any of the other dairies putting out milk in bottles.

Q. Have you had occasion at any time to perform any tests, other than the rinse tests?

A. We have not. You mean on the carton?

1003 Q. Yes.

A. No, sir.

Q. Besides milk cartons in Evanston, are there other cartons used for food products, such as oysters, ice cream?

A. Yes, lots of them.

Q. And do you have any examination or inspection of them?

A. No, sir.

Q. Do you know what board they are made out of?

A. I do not. I say I never examined them. I have examined them for bacteria by the rinse test, that is true, a few years ago, rinsing out the oyster pails and ice cream pails. Of course, these are open. They are not sealed. They are open to contamination. We find, of course, a different picture from these.

Q. Referring to ice cream pails?

A. Yes. We have those in the market, too.

Q. I show you a large brown bucket.

A. Yes.

Q. That is a gallon, or two gallons, I guess.

A. Yes. And they have a five-gallon.

Q. Do you see that paper liner on the inside?

A. Yes.

Q. Do you know what quality of paper that is made out of?

A. No.

Q. You permit the use of these also in Evanston?

1004 A. We do.

Q. Have you had any occasion, since you have been using the paper container in Evanston, to go to the mill or to the fabricating plant, to do any check-up on the quality of board used, or the sanitary methods employed there?

A. No, we never even considered it necessary, any more than I would in the make-up of the bottle. If we consider it necessary we can do it very quickly in the labora-

tory. If the question came up, we could do it, in other words, if we had to.

Q. And how would you do it?

A. Soaking a quantity up and wiping it out. I have got the methods at home. I don't recall them just at present. It is very easily done.

Q. How long have you been familiar with this project or problem of the use of the paper bottles for milk?

A. I think we considered it—I think it was about a year ago it came to our view. We did not allow it at that time. We did not know anything about it.

Q. What did you do before you allowed it to come into use?

A. We investigated it thoroughly, so I would become convinced that it was perfectly proper to allow it.
1005 We had Dr. Prucha's analysis.

Q. Is that Dr. Prucha sitting behind you here, from the University of Illinois?

A. Yes. We also at Cleveland last year devoted the meeting one day on this subject. It was discussed. Cleveland allowed them for five years, and at Saratoga. As far as I recall now, the cities that put them in had no trouble. There was no question about their being used. So we considered it and granted them this spring permission to put them in.

Mr. Gariepy: Cross examine.

Cross-Examination by Mr. Schaefer.

Q. You went to Cleveland to a meeting, Mr. Woodman?

A. Yes.

Q. And you talked to Dr. Prucha?

A. I am not saying I talked to Dr. Prucha at that meeting. I talked to Dr. Prucha in Louisville.

Q. Yes.

A. But I had Dr. Prucha's written report on this subject.

Q. And what other investigation did you make?

A. The Saratoga and the Cleveland.

Q. What did you do at Saratoga?

A. The same way, we had the same talk, at different cities where they allowed them, and after they had been allowed for three or four or five years, they
1006

were still allowing them, and no question of discontinuing the delivery of them.

Q. Who ran those meetings?

A. I beg your pardon.

Q. Who organized those meetings?

A. They were the International Association of Dairy-men—I forget the name of our association. It is the International Association of Milkmen—of Milk Dealers—not dealers, but health men.

The Master: But what?

The Witness: An international association.

The Master: What is that last word?

The Witness: Health men. I ought to be able to recall that name.

Mr. Gariepy: Take your time and see if you can't remember what it is.

Mr. Schaefer: Q. Milk Sanitarians?

A. Milk Sanitarians, now you have it. You helped me out. Thank you.

Q. Are you a doctor?

A. No, sir.

Q. You testified that seven per cent of the samples from the Fieldcrest Dairies, which you examined during the period since June 1, 1939, were above the permissible range, by a rinse test?

1007 A. Yes, sir.

Q. What did you do about those samples?

A. Nothing.

Q. Do you propose to do anything about them?

A. No.

Q. I see.

A. I want to make a remark. No more than—

Q. No, don't make any remarks. I will ask you the questions, Mr. Woodman.

A. Yes, sir.

Q. Now, you are enforcing in Evanston the United States Public Health Service ordinance?

A. Yes, sir.

Q. What does that contemplate, with respect to the production and processing of milk?

A. I didn't get that exactly.

Q. Do you inspect farms?

A. Yes, sir.

Q. Do you inspect cows?

A. We do.

Q. Do you pay any attention to what the cows eat?

A. Surely.

Q. And what do you look for on the farm?

A. Sanitary conditions in the barns and stables and see whether they come up to those requirements, and the gutters, whitewashing, the condition of the cows, where the milk is kept, cooling water, temperature, cleanliness of the cans, pails and utensils, whether the milk stools are clean and hung up, all of those details, under the United States Code.

Q. Water supply?

A. Water supply. The wells have to be properly curbed, just according to the United States Public Health Code.

Q. With respect to the pasteurization plants, what do you inspect concerning them?

A. The way the milk comes in and is handled there, the receiving vats, the weighing vats, the equipment, the pasteurizing time, the temperature, to see that it is all kept up to requirements; the bottles, the way they are washed there and also the sanitary condition of the washed bottles. When we take a test, we test also the farmers' milk as it comes to those plants.

Q. Do you make a bacteria test of the farmers' milk?

A. We make a bacteria test of the farmers' milk and we also take the empty bottle ready to be capped and filled.

Q. How do you get those bottles?

A. We take the empty bottles just as they go in the capper, and in place of having them filled with milk we take them empty and test them by the rinse method.

1009 Q. By "we" you mean yourself and those under your direction?

A. Yes. I get the samples and they are taken to the laboratory. We have a laboratory force there that does the practical work.

Q. In the event you find a dairy which is bottling milk in glass bottles running a count above the permissible limit, what do you do?

A. If they are just one or two bottles and they run in the low thousands or eleven hundred or thirteen hundred, an occasional one, I would not do anything at all. If I find them running up to twelve hundred or eleven hundred right along consistently, then of course I would take some action.

Q. What would you do?

A. I would tell them there was something wrong with their washing equipment there, their sterilization, that they did not use the proper sterilization, and they did not wash them thoroughly or did not sterilize them thoroughly.

Q. Would you go out or send someone out to look at the plant?

A. We do.

Q. You consistently do that?

A. We certainly do, if there is anything wrong like that, but with one or two samples or three or four 1010 occasionally, we don't pay any attention to that.

Q. What sort of a percentage are you satisfied with?

A. It is just an occasional one. If you look those records over you will see there are hardly any high counts at all. If I find bottles as good as that, I would be satisfied.

Mr. Gariepy: Q. When you say bottles, you mean glass bottles?

A. Glass bottles.

Mr. Schaefer: Q. What percentage of compliance will satisfy you? You say 93 per cent. All right. What percentage would you consider not satisfactory?

A. If I found ten or fifteen per cent running over and then running over consistently. If I am testing milk here today from any good dairy and find a high test, I don't pay any attention to it this week, but if I find it running high next week and the next week, then of course I take action, but just on one high sample alone we don't take action.

The Master: Q. It is more than one high sample; it is a number of samples.

A. If there is a number of samples running high, then I would take action. I have one today that I have got to see tomorrow, because it is running high for, say 1011 three weeks' running. That is what I mean.

Mr. Schaefer: Q. When did you permit the use of the paper containers?

A. I think it was the first of January. I am not certain whether that was December or the first of January. I think it was in December. I am not certain whether it was the first of December last year or the first of January.

Q. 1939?

A. 1938, in December. I didn't look that up. But it was one of those two months.

Q. It might have been December, 1938, or January, 1939?

A. Yes, it was one of those two months.

Q. What tests did you make between January, 1939, and June, 1939?

A. About four hundred, three to four hundred samples.

Q. Where did you get those?

A. We got those from the Borden and Bowman Dairy Company.

Q. And you used—

A. We used the same method.

Q. The Borden Company and the Bowman Dairy Company?

A. Yes.

Q. And you used rinse tests there as well?

A. Just the same. We got a carton like these every other week from the two companies, one every week
1012 from each of the companies.

Q. Where is the paper made?

A. I believe their package is made by the American Can Company. I am not going to swear to that. It is just my impression that it is made by the American Can Company.

Q. Do you know where the paper is produced?

A. I do not. I believe New York, but I would not say that.

Q. It might be Canada?

A. It might be.

Q. That is true of all of the paper used in the distribution of milk in the city of Evanston?

A. That is all. We have not gone into where it was made, no, sir.

Q. Do you consider the source of the paper important in determining the sanitary quality of the paper?

A. Yes.

Q. Why haven't you made any effort to ascertain the source of the paper?

A. Because we find by test that the milk—the empty container has no bacteria, it is bacteria free. If it has two or three hundred bacteria, I don't see how it makes any particular difference in that.

Q. You say you find the containers free of bacteria?

A. Yes.

1013 Q. As a matter of fact, you find by your regular tests made since June 1st, that seven per cent of them are over one thousand per container?

A. Yes.

Q. By a rinse test?

A. Yes.

Q. Now, that is not free of bacteria, is it?

Mr. Gariepy: I object to that. That is arguing with the witness, Master.

The Master: Overruled.

The Witness: A. It is the same way with the empty bottle, your Honor.

Mr. Gariepy: Q. Glass or paper bottle?

A. Glass bottle.

Mr. Schaefer: Just a minute. You will have your opportunity, Mr. Gariepy.

Mr. Gariepy: I know, but he says "bottle." I want to know what he means.

The Witness: A. There is no such thing as a sanitary container in any class. I have been through too many of those.

Mr. Schaefer: Q. Now, Mr. Woodman, where are these paper containers that are used in Evanston converted? Are you familiar with that term, "converted"?

A. Conversion. You mean made or fabricated and formed?

1014 Q. I mean made, as distinguished from fabricated and formed?

A. I don't know. I know where they are formed.

Q. Where is that?

A. The Dean Company, I believe, form theirs at a plant at Chemung, Illinois.

Q. Do you know where they are printed?

A. I do not.

Q. Do you know where they are cut and shaped?

A. Do I know what?

Q. Do you know where the shape of the paper blank is cut from the roll of paper?

A. No, I do not.

Q. You have never made any effort to ascertain that?

A. No. We had not even considered it necessary.

Q. Do you consider the conditions of that plant may affect the sanitary quality of the finished container?

A. It perhaps could.

Q. In what way would they?

A. If the board was very inferior and in poor condition, it probably would. If it was fabricated and handled in an unsanitary manner, it probably would. With the paraffining even a poor board, when we find the bacteria as low as it is, we consider it perfectly proper to be used.

Q. Do you know what material this paper board is 1015 made out of?

A. Wood pulp, as I understand it. I don't know whether there is anything else.

Q. You don't know anything beyond that?

A. I have read how they are made and how the wood is ground up and made up into pulp and how it is pressed out. I have read all that. I would not say they are all made that way, but I suppose they are.

Q. Have you ever made successive rinse tests on a paper container?

A. Have we made what?

Q. Successive rinse tests on a paper container.

A. No. Just simply rinse tests on the hundred cc.

Q. Rinse tests on a glass bottle would remove all of the bacteria on the bottle, wouldn't they?

A. I would not think it would.

Q. What?

A. Certainly not.

Q. You would say it would not?

A. Certainly not. In other words, you rinse this glass bottle out with sterile water and then rinse it out with another rinsing, and you might find a bacteria in there or two or three, wouldn't you? I beg your pardon. I didn't mean to ask questions.

Q. Have you ever tried it?

A. Yes, I have.

1016 Q. What did you find?

A. I found some bacteria left on the second and third rinsings.

Q. Did you ever try it with the paper container?

A. Yes.

Q. What did you find?

A. The same thing.

Q. Did you ever conduct any disintegration tests?

A. No, sir.

Q. Has anyone connected with the Evanston Board of Health ever performed any disintegration tests?

A. No.

Q. Who made the decision in the city of Evanston as to whether or not milk might be distributed in paper containers?

A. They left that up to me, the health board, Dr. Tucker, up to my recommendation.

Q. And you made the investigation that you have described?

A. I didn't get that.

Mr. Gariepy: Q. Did you make the investigation that you have described?

A. I did.

Mr. Schaefer: Q. And that is the only investigation you have made?

A. Three years I have been investigating it. Down in Louisville.

1017 Mr. Schaefer: Q. You described the investigation that you performed?

A. I did, after my investigation and all the knowledge I could get. From Dr. Prucha's examination and speech down there on the paper container and the pulp it was made of and the sanitary condition of the pulp, we considered it, was proper to allow them.

Q. How are your tests running on the other paper containers?

The Master: Q. The question is, how are your tests running on the other paper containers?

A. I hear him.

Q. Are they running any different from the ones you testified about, or are they about the same?

A. No, just about the same. You can see them there.

The Master: That is all.

Mr. Gariepy: That is enough. Just about the same. That answers it.

The Master: Mr. Schaefer, are you satisfied with that answer, about the same, or do you want to go into detail?

Mr. Schaefer: No, I am satisfied with that.

The Master: All right.

Mr. Schaefer: Q. Has the city of Evanston adopted any regulations with respect to the manufacturing and
1018 handling of paper containers?

A. We have not. Evanston expects to remodel their code before the first of the year, along the lines of the United States Public Health Code, which made some

changes. We expect to remodel all of our Evanston code to correspond with that. We may make some changes in our entire code.

Q. That is, you have at the present time no regulations whatsoever pertaining to the manufacture and handling of paper containers?

A. We have not now, no.

Q. In the event that you found that the manufacture and handling of paper containers was unsatisfactory, what would you do?

A. We would have to take means to control it, of course.

Q. Without regulations?

A. We have the right at any time to—anything that is not satisfactory or sanitary, that we believe might be detrimental to health, the health department, you know, can control the output at any time.

Q. Do you know whether or not the water at the paper mill where this paper board is manufactured is chlorinated?

A. I will have to tell you that I know nothing at 1019 all personally about any of that at the plant.

Q. You don't know whether there is sewage in the water supply or not?

A. Nothing at all.

Q. What kinds of bacteria were these that you discovered by the rinse tests?

A. We made no differentiation of any of them at all. Just simply a bacterial spore. The individual bacteria is not tested for, unless we have some reason for it.

Q. Do you know whether or not the quality of paper is uniform, from a sanitary point of view?

A. I do not.

Q. Your own tests would show you that?

A. No, we don't test the quality of the paper at all.

Q. It would show you whether or not it was uniform?

A. No.

Q. Would not the results of the tests to which you have testified show you whether or not the quality of the paper was uniform?

A. I don't see why.

Q. If it was of uniform quality, wouldn't you have the same bacterial count throughout all of these containers?

1020 A. Not necessarily.

Q. Why?

A. The handling of it, the way they were put up down there, might affect it.

Q. Down where?

A. Where they were fabricated.

Q. Where?

A. Where they were fabricated.

Q. You mean at Chemung?

A. The place where these are put up.

Q. You mean at Chemung, Illinois?

A. I beg your pardon?

The Master: He can't hear you.

Mr. Schaefer: Q. Do you mean at Chemung, Illinois?

A. Yes, I mean that.

Q. I see.

A. I mean, if they were not carefully handled there and well paraffined, then there would be a great difference, of course. A well paraffined container may act on the bacterial count, I believe. That is the standpoint we take. We may be in error, but that is the standpoint we take.

Q. At what temperature are these containers paraffined?

A. They are different temperatures. I don't know what Chemung uses. I believe it is 160 or thereabouts. I am not sure what that is.

Q. The temperature is important, is it not?

A. The temperature is important, yes.

1021 Q. You don't know what it is?

A. I was down there in this plant in Cleveland last year.

Q. I don't care about the plant in Cleveland.

A. I beg your pardon.

Q. Do you know the temperature at which the paraffin is applied to the containers being sold in the city of Evans-ton?

A. I do not, no.

Q. Do you know how long those containers are immersed in the paraffin?

A. I do not.

Q. Is the time of the immersion in paraffin important with regard to the quality of the paper?

A. It is. If it was not correct I would expect to find it in the bacteria count.

Q. Are you aware that the regulations promulgated by the United States Public Health Service requires immersion

for a period of—immersion in paraffin at a temperature of 180 degrees Fahrenheit?

A. It does now.

Q. Sir?

A. I believe it does now.

Q. Your containers are being paraffined, you believe, at 160?

A. I would not say so.

Mr. Gariepy: I object. He has already answered that.

1022 The Master: Overruled. The record will show what he said.

Mr. Schaefer: Q. You don't know whether your containers are immersed for a period of 30 seconds or for a longer or for a shorter period?

A. I do not, no.

Q. Did you ever attend college, Mr. Woodman?

A. Two years.

Q. Where was that?

A. Agricultural college, Ames, Iowa.

Q. You did not graduate from there?

A. No. I got married and quit school. I was in the dairy division there, in fact.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. Mr. Woodman, how much over the count of one thousand per quart was this seven per cent on the Fieldcrest containers that you testified to?

A. How much?

Q. Over the one thousand in bacteria?

A. I will have to look that up. Maybe twelve hundred or eleven hundred. Here is one eleven hundred, say. Here is one eleven hundred and here is one fifteen hundred. Those are the highest, I believe, in there.

1023 Q. Have you ever had an occasion, since you have been checking these containers and since they have been used in Evanston, to curtail the use of them?

A. Never.

Q. Are the figures that you have given with regard to bacteria counts on the Pure-Pak container here used by Fieldcrest Dairies higher or lower than the counts that you

found for the same period on glass bottles permitted in Evanston?

A. The count on the glass bottles ready to be filled is higher than on the paper containers.

Mr. Gariepy: That is all.

Mr. Schaefer: Just a moment, Mr. Woodman, before you go.

Q. The highest count here was two thousand.

A. Is it? Well, I had forgotten just what it was.

Mr. Gariepy: Is that all?

Mr. Schaefer: That is all.

(Witness excused.)

Mr. Schaefer: Were you through with Dr. Prucha, Mr. Gariepy?

Mr. Gariepy: I didn't get a chance to ask him about the adhesive during the noon hour.

1024 I first want to offer in evidence these exhibits from 46 to 56, inclusive, including Plaintiff's Exhibit 4, which has been heretofore offered on April 27, 1939, in a deposition. I am withdrawing Exhibit No. 48.

Mr. Schaefer: What are you doing; striking all of the testimony with respect to Exhibit 48?

Mr. Gariepy: Yes.

Mr. Schaefer: What?

Mr. Gariepy: Yes, at the witness's request.

Mr. Schaefer: Let us see if we can find it and strike it from the record.

The Master: What is Exhibit 48?

Mr. Gariepy: In regard to what he found in two dairies in the city of Chicago on glass bottles. He said he didn't care to disclose who they were, because of violating confidence that he gained in entering there and doing research work there.

The Master: Do you want to strike all of the testimony?

Mr. Gariepy: Only in regard to 48.

The Master: All of the testimony which is subsequently incorporated in 48?

Mr. Gariepy: That is right.

Mr. Schaefer: And which pertains to those tests 1025 and the results of those tests.

Mr. Gariepy: Only in Exhibit 48 and the two dairies covered by that.

The Master: Yes.

Mr. Gariepy: That is right.

The Master: Do you want to strike it physically, in which case you will have to get in touch with the reporter and have it stricken out.

Mr. Rall: I will see to that, Master.

The Master: These exhibits may be received in evidence.

(Said documents, being EXHIBIT 4, report of Dr. Arnold to the Ex-Cell-O Company, and, EXHIBITS 46, 47, 49, 50, 51, 52, 53, 54, 55, and 56, being sheets showing tests made by Dr. Prucha, were thereupon received in evidence and are attached hereto and made a part hereof.)

The Master: Let us proceed.

Mr. Schaefer: I would like to defer cross-examination of Dr. Prucha until we have had a chance to examine the transcript and examine the results of these experiments. I have talked to Dr. Arnold about it during noon recess, and there are several points he wants to clear up and a number that I do.

1026 Mr. Gariepy: I heard you say, Mr. Schaefer, that you wanted to defer cross-examination for what reason?

The Master: Read Mr. Schaefer's statement, please, Mr. Reporter.

(Mr. Schaefer's statement was read by the reporter as above recorded.)

Mr. Gariepy: I don't think it is fair, Master. He has had the benefit of Dr. Arnold at his right elbow while Dr. Prucha testified. Dr. Arnold is familiar with Dr. Prucha's work. These are matters of public record.

The Master: How much time do you want?

Mr. Gariepy: Then I will want a day or two to check what I have put in. We will never get through.

The Master: Off the record please.

(Discussion had off the record.)

The Master: We will go on next Tuesday, September 19th, at 10:15 a. m.

Mr. Gariepy: We can perhaps use some of the time this afternoon by putting in our stipulations, if the Master please.

The Master: How long will that take?

Mr. Gariepy: About twenty minutes.

The Master: Go ahead.

1027 Mr. Gariepy: I did not expect that they would not cross-examine Dr. Prucha, so I have left those papers

over at the office. It will take just a few minutes to get them over here.

The Master: All right. Take a recess until they come.

(A short recess was here had, after which the proceedings were resumed as follows:)

The Master: You may go ahead.

Mr. Gariepy: It is stipulated and agreed, by and between the parties hereto, by their respective attorneys, that on January 13, 1936, Dean Milk Company made application to the Board of Health for a permit to use single-service containers in the city of Chicago.

That subsequent thereto, on November 5, 1936, said application and request were renewed by Dean Milk Company with the dairy named as C. J. Wieland-Dean Company, covering the use of the same containers.

That on November 10, 1936, both applications were acknowledged as having been received by the Board of Health, by Dr. Bundesen.

That on December 4, 1937, S. E. Dean, as president of the Fieldcrest Dairies, Inc., plaintiff, and as duly authorized agent for it, made application to the Board of Health of the city of Chicago for a permit for the use of single-service containers in Chicago, by letter.

That on January 23, 1939, application was renewed, and on that date the sum of \$60 was sent to the acting president of the Board of Health, Dr. Black, in accordance with Section 3087 of the Mayor Kelly milk ordinance, in connection with the plaintiff's request and proposal to use twelve milk trucks for selling milk in paper containers in the city of Chicago.

It will be further stipulated that on January 27, 1939, the acting president of the Board of Health, Dr. Black, acknowledged receipt of said application and also gave the plaintiff an extension of privileges under Permit No. 1521 to sell unpasteurized milk at wholesale in the city of Chicago, this to include Fieldcrest Dairies under the same permit.

On January 27, 1939, the acting president of the Board of Health, Dr. Black, also acknowledged the application of the plaintiff for a permit for its pasteurization plant, located at Chemung, and stated that the matter was under consideration.

1029 On January 31, 1939, final request and application for the use of single-service containers on behalf of

Fieldcrest Dairies was made at the Board of Health, to which last request and renewal no reply was received from the defendant.

Is that stipulation satisfactory, Mr. Schaefer?

Mr. Schaefer: That is agreeable.

Mr. Gariepy: It is further stipulated and agreed, by and between the parties hereto, by their respective attorneys, that if A. T. O'Connor were called as a witness and duly sworn and testified in this cause, he would testify as follows:

That he is the duly elected and acting treasurer and director and officer of the plaintiff corporation; that as such he is familiar with the assets, income and effects of said plaintiff corporation and same are within his personal knowledge and observation; that plaintiff's business is the sale and distribution of milk and milk products in the State of Illinois and elsewhere; that its plant and equipment is located at Chermung, McHenry County, Illinois; that plaintiff is now selling and distributing milk and milk products in forty-six cities and villages in Cook County; and 1030 in other counties in the State of Illinois; that said sales are at retail and wholesale to customers and chain stores in large quantities daily, amounting to over five thousand quarts daily; that all of said sales above are made by plaintiff in "Pure-Pak" single-service paper milk containers in quart and pint measures and said containers are the same in style and quality as plaintiff desires to use in sale of milk in the city of Chicago; that said milk sold is Grade "A" milk and pasteurized at and in plaintiff's plant, inspected and is now approved by the State of Illinois under the statute, Chapter 56½, Illinois Revised Statutes (1937), Sections 16 to 46, and 101 to 111, inclusive, for sale of milk and milk products; that the plaintiff's income from said sales of milk in said containers amounts to \$9,000 per month now; that plaintiff owns and holds leases for machinery and equipment used and necessary in connection with said packaging of milk in said containers, representing an investment; together with other necessary trucks and equipment, amounting to \$20,000 now; that same were secured and purchased to use in the sale of milk at retail and wholesale in single-service containers in the City of 1031 Chicago; that plaintiff is ready, willing and able to now sell and distribute daily in Chicago, in single-service "Pure-Pak" containers, milk and milk products in

the amount of \$1,000 and upwards daily; that refusal to permit said use of the "Pure-Pak" single-service container alone prohibits said sales, and proceeds from same being received by plaintiff in the amount of approximately \$7,000 to \$9,000 per week at this time; and same have existed since December 1, 1937.

That the attached photostat copies of its charter and certificates are true and are in full force and effect at this time, unamended or modified in any manner, and same are pursuant to the laws of the State of Illinois and Michigan, and that plaintiff corporation is now operating under and by virtue of said charter and the certificate attached hereto, the originals of which affiant holds and will produce to support the facts charged in the complaint; that at the present time said plaintiff operates a large Fruehauf trailer-truck for the delivery of milk from its Chemung milk plant to its

distributing plant or station in Melrose Park, Illinois; 1032 that the said Fruehauf refrigeration plant operates automatically in said trailer-truck; that said refrigeration in the other smaller 24 trucks used in the distribution of milk from the Melrose Park distribution plant likewise operates automatically; that said truck is at the present time insulated and refrigerated so that said milk is kept

at all times at a temperature of from 40 degrees to 45 degrees Fahrenheit; that said distributing trucks which receive milk from the larger trucks at the milk station or distributing plant contain refrigeration equipment called "ice bunks" which are located inside of the trucks and said bunks contain 100 pounds of wet ice over which a fan pulls warm air across said ice so as to cool the same and to cool the milk; that said large truck distributing milk from the plant to the distributing station has "cold-hold" units therein for cooling said milk and containers and the same are of the same quality and character as used daily in ice cream trucks operating in the city of Chicago; that said "ice bunks" units are called Theurer Units; all of which equipment and stock keep milk in said trucks carrying said

"Pure-Pak" containers to stores and other purchasers 1033 at a temperature of not higher than 50 degrees Fahrenheit; that said milk is placed in brown fibre cartons containing a dozen quarts each and same are duly sealed in said brown fibre cartons and delivered from the milk distributing truck daily for sale within said period specified on said containers and said deliveries are made to stores and other commercial establishments in said

brown fibre cartons and thereafter sold by said store; that he knows these facts from his own knowledge and can and will so testify if called as a witness.

It is stipulated and agreed by and between plaintiff and defendants herein, that plaintiff is now and for several months, to-wit: from February, 1939, to date, daily selling Grade "A" milk in "Pure-Pak" containers in the following cities and villages located in Cook, Du Page and Lake Counties in Illinois; and that said sales of milk in said containers are by and with the consent or permission of the officials and health authorities of said municipalities, to-wit:

1034 Arlington Heights
Bellwood

Bensenville

Berkeley

Berwyn

Blue Island

Broadview

Brookfield

Calumet Park

Chicago Ridge

Congress Park

Deerfield

Desplaines

Dixmoor

Dolton

East Chicago Heights

East Hazelcrest

Elmhurst

Elmwood Park

Evanston

Fairview

Flossmoor

Forest Park

Franklin Park

1035 Glencoe

Glen Ellyn

Glenview

Greenwood

Hazelcrest

Highland Park

Highwood

Hinsdale

Homewood

Kenilworth

La Grange

Lake Forest

Lansing

Lombard

Lyons

Maywood

Melrose Park

Midlothian

Morton Grove

Mount Prospect

Niles Center

Northbrook

North Riverside

Oak Lawn

Oak Park

Orland Park

Palos Park

Park Ridge

Phoenix

Posen

Riverdale

River Forest

River Grove

Riverside

Robbins

Schiller Park

South Holland

Stickney

Villa Park

Western Springs

Wheaton

Wilmette

Worth

Winnetka

Subject to objections as to relevancy and materiality on which grounds the right to object is hereby reserved to each of the parties hereto, it is hereby stipulated and agreed between the parties hereto by their respective attorneys of record, without the necessity of further proof, that the facts hereinafter stated are true:

1. The report of the Chief of the Bureau of Dairy Industry, directed to the Secretary of Agriculture of the United States, dated September 1, 1938, for the fiscal year ended June 30, 1938 (O. E. Reed, Chief), contains in the copy thereof officially printed by the Government 1036 Printing Office of the United States the following:

"Single-Service Milk Containers.

"A survey was made of the use of single-service containers for milk in several eastern cities. Single-service containers are used quite extensively for delivery of milk to stores in New York, Philadelphia, and Baltimore. One distributor in a small city also uses single-service containers for delivery to family trade. This distributor was selling about 1,250 quarts to family trade and about 9,000 quarts to stores in paper containers. In New York City over 300,000 units are sold daily in paper containers, principally through the chain stores, and practically all milk handled by chain stores in Philadelphia and Baltimore is in single-service containers.

"While the paper container itself costs more than glass bottles (which average approximately 30 trips) including the washing of the glass bottle, considerable economies can be effected in the delivery to stores if the entire load of the delivery truck consists of milk in paper because of the smaller space and lower weight required as compared with glass.

1037 "Although paper containers are not used to any extent for retail delivery of milk, they are used quite extensively for sale of milk through stores and their use for this type of business seems to be increasing."

2. From and after February 26, 1937, there was in full force and effect in the City of Philadelphia, State of Pennsylvania, an ordinance dealing with the regulation of milk and milk products, which contained among other provisions the following section, to-wit:

"Section 8. The printing and trade marks on all caps and containers employed in the sealing or packing of milk

or milk products, which shall be offered for sale in the City of Philadelphia, shall be so designated as to be proof against deception. All proposed caps and containers shall be submitted to the Board of Health of said City for inspection, and shall not be used for the purposes herein indicated until approved by the Department of Health of said City.

1038 "No milk dealer shall transfer milk from one original container to another except in such cases expressly authorized by law. No person shall sell or offer for sale any bottled milk except in the original container."

3. Ice cream, butter, lard, cottage cheese and other kinds of cheese, oysters, pickles, soft drinks and liquid coffee are sold daily in the City of Chicago, at retail, in paraffined paper cartons made of virgin spruce pulp; ice cream is sold daily in the City of Chicago by manufacturers of ice cream to retailers of ice cream in metal cans with a thin paraffined paper liner between the ice cream and the metal container; thin paraffined paper is permitted by the Board of Health of the City of Chicago to be placed across the top of metal milk cans underneath the metal cover of such cans; paraffined drinking cups and paraffined paper straws are used daily in the City of Chicago; and paraffined paper liners for dishes in which ice cream is served are also used daily in the City of Chicago. In none of these cases is any objection made by the Board of Health of the City of Chicago, nor are any tests conducted by it to determine the sanitary quality of the paper so used.

4. Prior to the commencement of this suit and 1039 at all times since, the plaintiff, Fieldcrest Dairies, Inc., has sold liquid milk and milk products in "Pure-Pak" containers in the following municipalities in the counties of Cook, Lake and Du Page:

Arlington Heights
Bellwood
Bensenville
Berkeley
Berwyn
Blue Island
Broadview
Brookfield
Calumet Park

Chicago Ridge
Congress Park
Deerfield
Des Plaines
Dixmoor
Dolton
East Chicago Heights
East Hazelcrest
Elmhurst

Elmwood Park
 Evanston
 Fairview
 Flossmoor
 Forest Park
 Franklin Park
 Glencoe
 Glen Ellyn
 Glenview
 Greenwood
 Hazelcrest
 Highland Park
 Highwood
 Hinsdale
 Homewood
 Kenilworth
 LaGrange
 Lake Forest
 Lansing
 Lombard
 Lyons
 1040 South Holland
 Stickney
 Villa Park
 Western Springs

Maywood
 Melrose Park
 Midlothian
 Morton Grove
 Mount Prospect
 Niles Center
 Northbrook
 North Riverside
 Oak Lawn
 Oak Park
 Orland Park
 Palos Park
 Park Ridge
 Phoenix
 Posen
 Riverdale
 River Forest
 River Grove
 Riverside
 Robbins
 Schiller Park
 Wheaton
 Wilmette
 Winnetka
 Worth

It is further stipulated by and between the parties hereto, by their respective counsel, that if S. V. Layson were called as a witness and duly sworn and testified in this cause, he would testify as follows:

That he is milk sanitarian of the Department of Public Health of the State of Illinois with offices at Springfield, Illinois; that the Department of Public Health of the State of Illinois by or under the direction of the affiant has made an inspection of the plant of Fieldcrest Dairies, Inc., located in the village of Chemung, McHenry County, Illinois, approximately 76 miles from the City of Chicago, Illinois, and that said plant and its equipment and apparatus have been approved by the Department of Health of the State of Illinois as complying with the laws and regulations of said state pertaining to milk plants selling liquid milk and

cream to the public at wholesale and retail; that on 1041 or about November 17, 1938, the Department of Public Health of the State of Illinois issued its Certificate No. 395 for the calendar year 1938, and on or about January 18, 1939, issued its Certificate No. 59 for the calendar year 1939, which latter certificate, duly sealed with the seal of the Department of Public Health of the State of Illinois and signed by A. C. Baxter, Acting Director of Public Health of the State of Illinois, is now in full force and effect, and that the language of said certificate last mentioned is substantially as follows:

"The State Department of Public Health considers that the construction and equipment of the pasteurization plant is such that with proper maintenance and operation, the pasteurized milk or milk products will be safe for human consumption. The continued safety of the pasteurized milk or milk products depends upon the continuous proper maintenance and operation of the plant, the responsibility for which rests with the management of said plant."

That the Department of Public Health of the State of Illinois, in reliance upon tests made by the Department of Dairy Husbandry of the University of Illinois by or under the direction of Dr. M. J. Prucha, which tests 1042 have been accepted and relied upon by the said Department of Health, has approved the paper "Pure-Pak" container for the sale of liquid milk and milk products to the public in the State of Illinois; that the Department of Health of the State of Illinois has inspected the pasteurization plant and also the Ex-Cell-O "Pure-Pak" machine located in the plant of the Fieldcrest Dairy at Chemung, Illinois, and has approved the same, but the said Department has not made any independent investigation other than to examine the results of the tests made by the University of Illinois hereinabove referred to of the sanitary properties and efficiency of the said "Pure-Pak" paper container.

The Master: Let the record show that the hearing of this matter is continued to next Tuesday at 10:15.

Whereupon the further hearing in the above entitled cause was continued to Tuesday, September 19, 1939, at 10:15 o'clock a. m.

1043

(Caption)

Tuesday, September 19, 1939,
10:00 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

1044 Mr. Gariepy: Will you stipulate, Mr. Schaefer, that the two documents I now hand you were sent, he one on yellow paper, by Fieldcrest Dairies, Inc. to Dr. Herman N. Bundesen, President, Chicago Board of Health, City Hall Building, Chicago, Illinois; this one sent by Dr. Herman N. Bundesen to Mr. S. E. Dean, Jr., President, Fieldcrest Dairies, Inc., 20 North Wacker Drive, Chicago, Illinois? Will you examine the letters and state whether you will stipulate?

Mr. Schaefer: Yes, I will stipulate to that.

Mr. Gariepy: It is stipulated by and between the parties that on July 18, 1938 the plaintiff addressed a letter to Dr. Herman N. Bundesen, as follows:

"July 18, 1938

"Dr. Herman N. Bundesen, President,
Chicago Board of Health,
City Hall Building,
Chicago, Illinois.

Dear Dr. Bundesen:

Our respective records contain a letter from the Dean Milk Company to you, as president of the Board of Health, dated November 5, 1936, in which application was made to distribute milk and milk products in paraffined 1045 paper, single-service containers of the Pure-Pak type.

Subsequently, you suggested that studies be conducted by competent authorities to determine the satisfactoriness of such containers from a public health viewpoint, and in accordance with this suggestion we arranged for studies by the following recognized authorities:

Dr. P. H. Tracy, and Dr. M. J. Prucha, of the University of Illinois.

Dr. Alex A. Day, of Northwestern University.

Dr. Lloyd Arnold, University of Illinois Medical School.

These studies were conducted on the Pure-Pak type of

container. The results of these studies were submitted to your Department along with letters from Boards of Health in many other cities and other pertinent information relating to Pure-Pak equipment and materials used in processing.

Under date of December 4, 1937, we advised you, in writing, that the Fieldcrest Dairies, Inc., a wholly owned subsidiary of the Dean Milk Company, had replaced the proposed C. J. Wieland-Dean Company, and that the application for a permit should be transferred to the 1046 new corporation.

Because of the favorable reports made by each of the above mentioned investigators, we are herewith renewing our request for a permit to use paraffined paper, single-service containers (Pure-Pak type), for milk and milk products.

Fieldcrest Dairies, Inc., will operate on a wholesale basis and will sell milk, cream, buttermilk, chocolate milk, and such other products as are or may be handled by similarly conducted enterprises.

Your attention to this application at an early convenience will be appreciated.

Yours very truly,

Fieldcrest Dairies, Inc.,
President."

Mr. Gariepy: Stipulated by and between the parties that on July 22, 1939 there was received in reply thereto the letter dated July 22, 1938, which is as follows:

"City of Chicago
Board of Health
Office of
Herman N. Bundesen, M.D.
President of the Board.

July 22, 1938.

1047 "Mr. S. S. Dean, Jr.,
President, Fieldcrest Dairies, Inc.,
20 North Wacker Drive,
Chicago, Illinois."

Dear Mr. Dean:

This will acknowledge receipt of your letter of the eighteenth of July, relative to your application to distribute milk and milk products in the city of Chicago in paper containers.

Correspondent and conferences held, in the past, with the organizations and individuals who, you inform us, have been replaced by the concern you represent, definitely indicated our position with respect to the use of paper milk containers in this city.

Referring to the following statement,

'Because of the favorable reports made by each of the above mentioned investigators,'

I beg to advise that our record is not in accordance with that statement. In recent conferences with one of your own committee whom you mention, we are informed that definite standards must be met in the manufacture of the paper and container before this type of package may be considered assuredly satisfactory from a public health standpoint. We are advised that, as yet, no paper container on the market meets with these necessary requirements.

We are enforcing, in Chicago, the United States Public Health Service Milk Ordinance and look to the United States Public Health Service for technical advice with respect to public health problems, including the safeguarding of our milk supply.

We have been advised by the Surgeon General that, in view of the very evident differences of opinion on the subject of paper containers for milk and milk products, the problems will be brought before the United States Public Health Service Milk Sanitation Advisory Board at its next meeting and that, in the meantime, health authorities are justified in maintaining the status quo.

We wish to again repeat that as soon as unrefutable, scientific evidence is available that will definitely show that there are no health hazards involved in the use of placing milk and milk products in paper containers, we shall be glad, at that time, to give your application every consideration.

1049

Yours very truly,

(signed) Herman N. Bundesen,

President, Board of Health.

Mr. Gariepy: It is stipulated by and between the parties hereto, by their respective attorneys, that for the purpose of a better understanding of the evidence herein, the parties agree that the Master in Chancery, Jacob I. Grossman, may visit the plaintiff's plant at Chemung, Illinois, and the Ex-Cell-O Pure-Pak Machine therein used

by the plaintiff to package milk in Pure-Pak Single Service Containers, and inspect the operation of said plant and said machine.

Mr. Schaefer: That is agreed to.

Mr. Gariepy: I will ask that this single sheet marked for identification as plaintiff's exhibit 51 (page 2).

The Master: It may be so marked.

(The sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 51 (page 2) for identification.")

Mr. Gariepy: Master, before going ahead with the cross-examination of Dr. Prucha, on the part of the defense, I want to ask the witness a few more questions on direct examination.

The Master: Proceed.

1050 MARTIN JOHN PRUCHA resumed the witness stand on behalf of the plaintiffs and testified further as follows:

Direct Examination (Resumed) by Mr. Gariepy.

Q. Doctor, with regard to plaintiff's exhibit 51, testified to by you as shown on page 959 of the record, did you perform any tests subsequent to test number 3, concerning the bacteriacidal property of paraffining?

A. Yes.

Q. Showing you plaintiff's exhibit 51 (page 2) for identification, does that show tests numbers four and five that you performed on that same experiment?

A. Yes.

Q. Was that performed at the same time as number one test?

A. It was performed during one week.

Q. What does it show with regard to the quality of the suspension used in performing that test and the bacteria count?

A. Dr. Arnold's problems, which he requested to be done, if you recall—

Q. We have agreed that Dr. Arnold did not request you to perform anything, Doctor.

1051 A. I mean that was presented to the referees. Now, we agreed on experiment three, that the bacteria will go through the paraffin.

Q. What about test number four, what does it show? That is my question?

A. Test number four shows that when you have about a million and a half bacteria suspension in which you dip the paper and then paraffin it, you can not find—we have not been able to find any bacteria present on the paraffined paper.

Q. What was your finding with regard to the number nineteen shown in test number four, in the left hand column, as to the amount of the bacteria found?

A. Table nineteen, for example, gives the number of bacteria that were deposited on this piece of paper. As explained, we made ten plates from the pulp, disintegrated paper, which was freshly inoculated and that gives us the amount of inoculation on the paper.

Q. How much did you find in the way of bacteria on the paper after that inoculation?

The Master: Wait a minute. What are you talking about—on the paper before paraffin was applied?

The Witness: Yes.

Mr. Gariepy: That is it.

1052 The Master: All right, go ahead.

The Witness: 420 colonies on one plate, multiplied by 100 times—about 42,000 bacteria.

The Master: Q. On what?

A. When the paper was dipped in and allowed to drain, of this size, there were about 42,000 individual bacteria.

Q. You are indicating "this size". State how long that is.

A. 2 inches by 4½ inches.

Q. All right. You take this naked paper, with how many?

A. About 42,000.

Q. 42,000 bacteria?

A. Yes.

Q. And then you take this piece of paper with the bacteria and put it in the same paraffin?

A. No, not this first one. This was examined, unparaffined, to show how many bacteria.

Q. Then what did you do?

A. Then we took another piece or strip of paper, the same size, and paraffined it immediately after it was dipped in the bacterial suspension, inoculating it about to the same extent.

Q. Yes.

A. And we were unable to find, by plating it, that
1053 any bacteria of this organism survived the paraffin-
ing.

Q. Whether on the outside or under the paraffin?

A. It was disintegrated completely.

Q. Yes.

A. 21 is the same, just another strip made to check on that. 22, we allowed the strips of paper to dry for one-half hour before we paraffined them and then, 22 is a dry strip, unparaffined.

Mr. Gariepy: Q. It showed what?

A. Within a half hour tremendous reduction in the number of bacteria were recoverable.

Q. How much reduction?

A. 420 to 31.

Q. The difference between 420 and 31?

A. Yes, say up to 90 percent reduction. Then 23 and 22 were just two strips paraffined after they were dried and then disintegrated, and we could not find any bacteria by that method.

Q. What about test number five?

The Master: Just before you go into that test, I have a question:

Q. This number 22, you say that is the count of bacteria after about a half hour had elapsed following the dipping?

A. Yes, unparaffined.

1054 Q. Unparaffined?

A. Yes.

Q. How much time elapsed between the dipping on number 20 and the time that you applied the paraffin? Right away?

A. About one minute.

Q. About one minute elapsed?

A. Yes, sir.

Q. How much time elapsed between the time of the dipping and the time that you tried to find out whether any bacteria survived following the paraffining?

A. It took about three minutes for the paraffin to harden.

Q. Yes.

A. Then it was immediately disintegrated and it was immediately plated.

Q. How long before you started to count the bacteria?

A. The plates have to be incubated three days.

Q. Three days?

A. Yes, about three days.

Q. You say incubated?

A. You saw those plates we had here?

Q. I understand.

A. We put in the nutrient broth and put in the material with bacteria, you don't see it at first, but they grow and develop visible on the plates.

1055 Q. Let's assume that you put in a plate and let it incubate for about three days, would that have any bacteriicidal effect on the bacteria at all?

A. No. The nutrient agar is a food for bacteria to grow.

Q. How much time would you say elapsed from the dipping into the bacteria of the raw paper to the time that you put on the paraffin, about five minutes, would you say?

A. Less.

Q. Less time?

A. When we paraffin the paper wet, about one minute.

Q. What I am trying to get at is whether the bacteria died the same as they did on the other piece of paper, where you said within a half hour after permitting the dipped paper to dry, there were no bacteria there?

A. A few—not many.

Q. One of those, you said, there were none, didn't you?

A. Yes, on the unparaffined.

Q. Yes.

A. Not in this test.

Q. Number 22 gives you the number of bacteria that remained after half an hour of drying?

A. Yes.

Q. What kind of drying was that?

1056 A. Just left in the room at room temperature.

Q. In one-half hour the bacteria had partly disappeared, hadn't it?

A. Quite a large percent of it.

Q. Without any paraffining?

A. Yes, sir.

Q. I was trying to see whether the death of bacteria was due to paraffining or just ordinary temperature?

A. Just ordinary drying.

Q. Just ordinary drying?

A. Yes.

Q. So, in the case of paraffining, you did not try to find

out whether any germs were left, until about three days had elapsed; and I am trying to ascertain whether the death of those bacteria, after three days, were due to the paraffining or were due merely to the lapse of time?

A. May I explain?

Q. Yes.

A. The making of plates, the minute we make the plates, we stop any action in the plates; the bacteria will then grow and they grow until they show visible colonies, which we count, and if they are dead they won't produce colonies.

Q. In the disintegration process?

A. Yes. So that the plates is a method to de-
1057 termine the survival of the bacteria. The minute the plate is poured you stop any action at that point.

Q. If you only take about six minutes from the time you dip the original naked paper in the germ solution?

A. Yes.

Q. Then at the end of six minutes you apply the paraffin, that six minutes is all of the time that you can apply for drying purposes, that is all of the time you can take. You say they really dry only about six minutes, and the only test you have is a half hour, to show how many germs were alive. Now, you say that having arrested the progress of the death of all of these bacteria by putting paraffin and then putting the disintegrated piece of paper in nutrient mixture, then six minutes is all we can say was the time during which the original dipped paper was drying; is that right?

A. The paper that was paraffined wet?

Q. Yes.

A. Yes, except this—I don't know to what extent the paper under the paraffin dried. That paper was paraffined, whether more moisture remained in the paper or not. I didn't catch that. Some of it was driven off in paraffining.

Here is a combination of drying somewhat and of de-
1058 struction of bacteria by paraffining; both operate. The drying was done, not for the purpose to see how many are killed by drying. Ordinarily, a wet container, paraffined, is not satisfactory to paraffin, a wet container, and this was done just for the purpose that the paper would be dry enough so that it would represent normal paraffining, and it took about a half hour for the paper to dry under room conditions.

Q. You are talking now about 22, or 23?

A. Both—all three. We kept these three strips, 22, 23 and 24 after we put them in.

Q. Putting the question to you concretely: In 22 you say after half an hour the germs were partly gone?

A. Yes.

Q. Suppose they had lasted a little bit longer, they might all of them have been gone?

A. Yes.

Q. In this number 23 you applied paraffin about five or six minutes after the naked paper had been dipped into a germ solution?

A. Yes.

Q. Now, I am trying to find out whether the subsequent drying of this paper, under paraffin, would possibly have the result of the death of the bacteria, or whether it 1059 was the paraffin that did it. Now, you say that they partly died at the end of half an hour, and I am trying to find out whether, if you had gone ahead and sealed this paper, so to speak, by paraffining, whether the subsequent drying killed the bacteria, whether you put the paper in a nutrient solution or not; was it the paraffin that killed the bacteria or just the drying that did it?

A. In this test, both operate in paper; paraffin is at these high temperatures a very effective germicidal agent, the high temperature of paraffin, 170 degrees F.

Q. Will you say that if the germs died in an ordinary room temperature, that heating the room would make them die just that much sooner?

A. It would dry quicker, if you raised the paper above a certain point you would have killed them, also.

Q. Then you would have a tendency to dry the bacteria out that much faster, if you raised the temperature of the paraffining?

A. Paraffining kills bacteria? We don't know what kills them.

Mr. Gariepy: Q. 22 is the test with the unparaffined strip?

A. Yes, sir.

1060 Q. 23 and 24 is a test with a strip paraffined?

A. Similar, as 22, except paraffined.

Q. Test number five shows a test that you made in the same bacterial suspension, about how many bacteria were put into that solution?

A. I used 320 million bacteria per cubic m.l.

Q. Was the strip paraffined or not then in test number 231

A. In test number 25 it was not paraffined.

Q. Was it wet?

A. Yes.

Q. What did it show when you dipped it into this solution, and exposed it, and how long did you expose it?

A. We exposed it to paraffin 15 seconds at 170 degrees F.

Q. Is that 25?

A. 25 was not paraffined.

Q. What did it show as to the amount of bacteria after you had exposed it, dipped it into this strong solution you have just mentioned and described?

A. It showed that a piece of paper had about 5 million bacteria on it after it was dipped in the bacterial suspension.

Q. And how long had you exposed it before making the count and plating it?

A. Again, as soon as I could perform the operation, a matter of five or six minutes. It was mixed with water and disintegrated immediately and plated, about six minutes all together before the plates were poured.

Q. 26 shows wet paraffined strip?

A. The same type, similar piece of paper, paraffined at 170 degrees F. for 15 seconds.

Q. And it showed then how many bacteria and you plated out how many?

A. The bacteria that we recovered?

Q. Were how many?

A. About 2,000 roughly, in the neighborhood of 2,000 or 1,800.

Mr. Schaefer: Q. What is the factor in there, Doctor?

A. The factor is 100, in both cases.

Q. That is throughout plaintiff's exhibit 51?

A. I think so, yes, because the method I used was to take this paper, 2 inches by 4½ inches, disintegrate it in 200 cubic m.l. of sterile water and take 2 m.l. of the mixture in each of the plates.

Mr. Garipey: Q. Does number 27 and 28 show wet paraffined strips under the same suspension, or suspension of 3 million 200 thousand per m.l.?

A. The suspension used in test 27 and 28?

Q. On wet paraffined paper?

1062 A. Was the same in test five, except it was diluted a hundred times.

Q. What did it show with regard to the amount of bacteria when you plated it?

A. On one of the strips we found no bacteria. On one of the strips we found one bacteria, and that was on one of the plates.

Q. When you reduced the quality or the severity of the suspension to 32,000 and then dipped wet bacteria strips into this suspension and plated that, what did it show with regard to the amount of bacteria?

A. We found no bacteria present in the disintegrated paraffined piece of paper.

Q. During the month of July, 1939 did you have occasion to perform a test with regard to the bacterial counts on 50 glass bottles at the Ogden Dairy in Chicago, Illinois, as compared with the bacterial counts on 50 Pure-Pak Containers from the same methods from Fieldcrest Dairies?

A. Yes.

Mr. Garipey: I will ask that this paper be marked as plaintiff's exhibit 59 for identification.

(The sheet referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 59 for identification.")

1063 Q. Where was this test performed, referred to in plaintiff's exhibit 59 for identification?

A. That is test of the paper containers—

Q. Answer the question, Doctor. Where was this test performed, referred to in plaintiff's exhibit 59 for identification? Where was it performed, in Chicago or at the University, or where?

A. The glass bottles were performed right in the milk plant in Chicago.

Q. The Ogden Dairy?

A. Yes, sir.

* Q. Where are they located in the city do you know?

A. On Ogden Avenue, I don't remember the number—it is thirty-eight something.

Q. How did you obtain the bottles, what was the course with regard to picking up the bottles; where were they in the plant?

A. The bottles were traveling from the washing machine and the bottles were washed and sterilized and were traveling to the bottle filler, and as the milk was being filled, and we took it right as it approached the bottle filler.

Q. That is in the regular course of operating the plant?

A. Yes.

Q. How did you obtain the bottles from the plant of the Fieldcrest Dairies, Pure-Pak bottles?

1064 A. These bottles were sent to us from the Fieldcrest, they were paraffined and sealed and sent to us, to our own laboratory and we examined them.

Q. This is your result of 50 tests on each bottle?

A. Yes, 50 bottles examined.

Q. What did it show concerning the bacteria count on the quart size Pure-Pak Containers as to the number of bacteria on that quart?

A. Thirty-six of the fifty bottles—

Q. Which bottles?

A. Of the Pure-Pak bottles—

Q. Showed what?

A. Were sterile, we found no bacteria in them by the standard method.

Q. That is the same standard method you discussed before, the rinse test?

A. Yes.

Q. What did you find on the glass bottles, how many?

A. On the glass bottles there was only one bottle that showed no bacteria.

Q. An absolute absence of bacteria?

A. Yes.

Q. What did the bottles show as to the relative amount of the counts per bottle?

A. I would consider—

1065 Q. The highest was how much?

A. The highest was 8,300.

The Master: Q. On what?

A. On the bottle.

Mr. Gariepy: Q. Glass bottle or paper?

A. On the glass bottle we found one bottle had 8,300 bacteria and 10 of the bottles were above the standards.

Q. Above one thousand?

A. Above one thousand, yes, sir.

Q. And how many below?

A. And 40 were below.

The Master: Q. What is that?

A. 40 were below.

Q. How much is the standard?

A. 1,000 bacteria, for an empty bottle.

Q. What do you mean by above the standard—it contained more?

A. More than a thousand, yes.

Mr. Gariépy: Q. When you referred to standard, did you refer to the standard or suggested standard dictated or suggested by the United States Public Health Service Ordinance of 1,000 per quart bottle?

A. Yes, that is the standard for Grade A Milk.

Q. When you were on the stand before, I asked you 1066 concerning a test of the adhesive used on the Pure-Pak Container?

A. Yes.

Q. During this year did you perform some research work to ascertain the quality and the number of the bacteria counts of the adhesive used on the Pure-Pak Container?

A. Yes, sir.

Q. Where did you get the adhesive?

A. One sample of the adhesive was taken in the milk plant, as the adhesive was being used. The rest of them were sent to us from two companies that manufactured the adhesives used for the containers.

Q. Name them?

A. It is the Arabol Company of Cicero, Illinois.

Q. The Arabol Manufacturing Company?

A. Yes.

Q. The other one?

A. The other one is the National Adhesive Corporation. I forgot their address.

Mr. Gariépy: I will ask that this paper be marked plaintiff's exhibit 60 for identification.

(Paper referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 60 for identification.")

1067 Q. Showing you plaintiff's exhibit 60 for identification, is that the result of the test that you performed concerning the amount of bacteria per gram?

A. Yes.

Q. Will you tell the Master how you performed that test on the adhesive to ascertain the amount of bacteria per gram in it?

A. I weighed one gram of the adhesive and mixed it with 9 m.l. of sterile water until I made an emulsion of it; then I used 1 m.l. of this emulsion in each of five plates.

Q. Yes.

A. And poured that on to count the number of bacteria on it.

Q. What did your count show on five plates with seven different samples?

A. It varied per gram of the adhesive. The highest count obtained, I had 16, and the lowest count I found in bacteria.

Q. 16 bacteria per gram is how much bacteria you would expect to find on the portions of the single-service Pure-Pak Container where the adhesive is applied, taking the quart as an example?

Q. My information is that about 1400 containers 1068 would be paraffined with one pound of adhesive.

Q. You did not answer the question as to how much bacteria you would expect to be contributed to the Pure-Pak Container corners where the adhesive is applied by reason of what you found in this test.

A. Approximately, the highest count sample we had which gave 16 colonies per gram, and one gram would seal, roughly, three containers; therefore, dividing sixteen by three gives you roughly five bacteria per container deposited with the adhesive in the seam.

Q. What is the kind or quality of that bacteria with regard to being non-spore forming, or spore forming, or B-coli?

A. We did not make thorough tests of that point, except that I have recognized some of the bacteria as my friends, so to speak, on the plates. My observation was that they were mostly spore forming bacteria. The other non-spore forming bacteria were also present.

Q. Is that, in your opinion, the quantity that you found contributed by the adhesive, sufficient to present a health problem?

A. I would say no health problem is there.

Q. Suppose there was any penetration of these bacteria into the milk, from the corners of the container, would 1069 that present any health problem?

A. I would say no.

Q. Will you describe the type of bacteria or the character of bacteria that you found present in the sterilized glass milk containers that you examined at the Ogden Dairy in July, 1939, as compared with the bacteria flora or character that you found in the Pure-Pak container?

A. The outstanding difference is that glass bottles after

they are washed and sterilized have somewhat miscellaneous type of bacteria, the non-spore forming bacteria predominating. In the paper container, Pure-Pak Container, the conspicuous thing about the bacteria flora is that the large percentage of the bacteria, if any present, are all spore forming variety.

Q. Which means what with regard to presenting a health problem or not?

A. Which means this, that with the ordinary disease that might be carried by milk, like typhoid, tuberculosis, septic sore throat, undulin fever, are non-spore forming bacteria; and spore-forming bacteria can not be killed, the spores can not be killed by any method, what we call germicidal or bacteriacidal treatment in the milk plant; spores can not be killed.

Q. Are you acquainted with the degree of temperature employed in the Fieldcrest Dairies plant in turning out 1070 of the finished container with milk as to what temperature they use?

A. Yes.

Q. State, first, what temperature that is?

A. The temperature is 170 to 172 degrees F.

Q. Is that 170 to 172 degrees F?

A. Yes.

Q. Have you performed any research work or tests with regard to using a higher degree of temperature, Fahrenheit, above 172?

A. Yes.

Q. What is your opinion with regard to the use or the advisability of using a higher degree of temperature, higher than 172 degrees F?

A. There are two problems connected with paraffining: one is to paraffin the container in such a way as to give it a good paraffin coating, to make it firm. The higher temperature you use, the poorer product you get in that respect.

Q. Is there any other effect of the high temperature other than that?

The Master: Effect on what? You say the higher the temperature of the paraffin, the lower the quality of what?

A. Of the bottles, the higher temperature—when the bottle is paraffined at high temperature, the paraffin 1071 runs off from the walls of the paper and gives you a thin coating, more flexible, not as acceptable in the

industry for milk. In the paraffining at lower temperatures you get more paraffin deposited on the walls.

Q. What do you call low temperature?

A. Temperature 170 degrees F.

Q. What do you call a high temperature?

A. You don't get as good—

Mr. Gariepy: Answer the question:

A. What do you call a high temperature?

A. 180, 190 or 200 degrees F.

Q. Have you performed tests running the machine with paraffin applied at temperatures of 180 and 180 degrees F?

A. Yes.

Q. Is this the result you gave me as your opinion, the result of your observation and experience?

A. Not only observation, that is on examination of the containers, and this is a well known fact in the industry, also.

Q. Have you during the last two years that you made research and study of this problem performed tests with regard to inoculating paper board at the paper mills just before it goes through the hot rolls?

1072 A. Yes, sir.

Q. When did you do that and where did you do it?

A. I carried on experiments in Detroit.

Q. When?

A. That is more than two years and two months ago.

Q. What mill?

A. Detroit Sulphite.

Q. Where did you perform the other tests?

A. I performed the other tests in New Jersey, at Regal Paper Mills.

Q. What was the condition of the water supply, we will say, where the paper board was made at the Detroit Sulphite Mill?

A. The water in the Detroit Mill was rather heavily contaminated with B-coli.

Q. What did you do in performing the test to ascertain the effect of this heating and passing through the rollers on the board at this Detroit Mill, where they used this quality of water?

A. We took samples all through the mill, including up to the point when the layer of pulp—paper to be—started to run over the rollers.

Q. Then what did you do at that point?

A. We did nothing except the water used for dilution of the paper was heavily seeded with B-coli. Naturally, we examined the pulp as soon as it came off of the 1073 rollers.

Q. What did you find as it came off of the rollers at that mill?

A. At no time were we able to find B-coli surviving the treatment as the paper runs over the heated rollers; B-coli bacteria were killed, apparently.

Q. What did you find in the New Jersey Mill that you performed a test on, as to the paper board before it got to and went through the hot rollers, what did you find as to the condition of the board there?

A. In the New Jersey Mill we artificially inoculated the paper at the same point, the layer of paper, with the pulp just before it started to run over the hot rollers.

Q. What did you inoculate it with?

A. With living suspension of bacteria.

Q. Was it heavy or light?

A. Heavy.

Q. What did you do after you inoculated this and it went through the rollers, next, what was your next step?

A. Then we marked the spot, inoculated regions, and let it pass through the rollers and then we cut out samples from the finished paper, the areas inoculated, and examined it for the bacteria that we used.

1074 Q. What did you find?

A. We found that at no time were we able to recover the inoculating organism from the paper.

Q. Which indicates and shows what effect the heating and passing through the rollers has on the board, which is what?

A. It indicates that the paper subjected to the heat, as it runs over the hot rollers, receives very thorough bacteriacidal treatment.

Q. What was the temperature in the rolls when this board went through, when you performed these two tests?

A. The rollers are heated by steam under pressure and they use about 15 to 20 pounds of steam pressure which gives a temperature of about 250 to 260 degrees F.

The Master: Q. Do I understand you to say it does not make any difference how badly affected with bacteria the water is that you use in making paper?

A. The treatment the paper undergoes in running over these hot rollers destroys it.

Q. It wouldn't make any difference if you took water from the sanitary district channel and used it in making this paper?

A. You wouldn't find any of the coli present there.

Mr. Gariepy: Q. B-coli, did you say?

A. B-coli.

1075 The Master: Q. How about odor?

A. Odor?

Q. Yes.

A. Non-spore forming organisms of the kind we are interested in, in dairy sanitation—

Q. You could take water from the sanitary district canal and put it in and use it in making this paper and it would not make any difference so far as health is concerned?

A. Of the paper—well, I say no, if I may thoroughly explain.

Q. Well, go ahead and explain it.

A. Any bacteriacidal treatment is, to some extent, conditioned by the copiousness of the inoculation; the larger the number of bacteria, the more chances there are that some will survive any bacteriacidal treatment. This bacteriacidal treatment of the hot rollers, however, is extremely efficient and I would guess that no matter how heavily seeded the water is with coli bacteria that you use for diluting the pulp, and passed it over the hot rollers, you will not find any coli present in the finished product. I am guessing on that, predicting.

Mr. Gariepy: Q. You did not find any B-coli present in any of these?

1076 A. No.

Q. The paper mill where there was a bad water supply, and the Cherry River Paper Mill, where they had a good water supply?

A. The organisms are the Dr. Frank Strain B-coli.

Q. Resistant to heat?

A. Yes, sir.

Q. Which means it would survive heat and fight off the effect of the heat applied to the paper board so inoculated?

A. We used that organism for testing the efficiency of pasteurizing of milk.

The Master: Q. You are specifying B-coli?

A. Yes.

Q. Are those the only coli that might affect health?

A. No. The organism of B-coli is used in many of these tests because the organism is a non-spore forming organism, it is a little more resistant to heat than organisms like disease organisms like typhoid are when we inoculate milk with that organism and pasteurize it, we reduce the number to a certain point, we say that if typhoid got in they would be killed.

Q. They are not as resistant to heat as the B-coli?

A. Not quite.

Q. So that when you say the B-coli were not 1077 present, you have given us the coli that you think are the most resistant to heat, and if they don't survive, then nothing else could survive; is that correct?

A. Correct.

Q. How about tubercle bacillus?

A. Tubercle bacillus is a little harder to kill than typhoid germs, but not quite as difficult to kill as B-coli or Frank Strain.

Mr. Gariepy: Q. Not as heat resisting?

A. Not quite, that would be my conclusion. I never tested it myself.

The Master: Q. Would you say the amount of coli that you either put into the water directly or the amount of coli present in typhoid approximated the amount of coli that might be present in the sanitary district canal water?

A. We put more, a larger number of bacteria with artificial inoculation on paper than it would receive from any water used.

Mr. Gariepy: Q. Doctor, have you performed some tests with regard to the amount of absorption that there is in the Pure-Pak Container?

A. Absorption, yes.

Q. When did you perform that test, and where?

A. We carried out a number of tests. The first 1078 test we carried out was two years and three months ago.

Q. Where?

A. At the University of Illinois.

Q. Did you get the Pure-Pak Containers from the Fieldcrest Dairies?

A. No.

Q. Did you use them in your own dairy?

A. We used a machine there and paraffined them ourselves and carried on tests with them.

Q. Tell the Master how you performed that test to ascertain absorption, and the amount?

A. We filled the container with milk and stored it.

Q. Where?

A. In a refrigerator, in room temperature also, for certain lengths of time, up to 48 hours or thereabouts. Then we emptied the container and rinsed it with water and dried it quickly. We weighed the empty container before and after we emptied the milk and rinsed it with water to remove all of the milk and then quickly dried it with compressed air and then we weighed it again.

Q. And what did you find?

A. We found that the container picked up about two grams in weight.

Q. Which equals about how many drops per quart?

A. About 40 drops.

1079 Q. Did you perform a similar test with regard to the amount of absorption of the paper cap used on the glass bottles?

A. Not in this manner.

Q. Tell the Master how you performed it?

A. We determined one way to measure the possibility of absorption is by treating the container with a solution of dye, like methlyn blue.

Q. You did that?

A. We did that and as I did in some of the samples here the last time, the caps as a rule which are used to close glass bottles do not have as good paraffining as the paper container.

Q. Would you say the absorption on the caps is less or greater per area than that which you found in the board in the paper container?

A. It is greater because the whole surface of the caps are affected in absorption.

Q. Do you know what is accepted by milk sanitarians as the most satisfactory standard method used to determine the efficiency of sterilization of a glass or paper container?

A. Yes.

Q. What is it?

A. May I read it to you?

1080 Q. Do you know it? Tell what you know.

A. It is a rinse test.

Q. Is there any additional test that is considered a satisfactory standard method for ascertaining the sterility, in addition to the rinse test?

A. Do you speak of glass containers?

Q. Yes.

A. That seems to be best available as a test.

The Master: I wanted to ask you a question:

Q. You have been talking here all of the time about germs remaining in the paper and you have said that none would remain, or there would not be any danger to health. How about danger to taste, the effect upon taste of something that might be put into the container?

A. If something would be put into the container that has taste, it would, of course, appear in the milk.

Q. Let's take a contaminated water supply used in the manufacture of paper?

A. Yes.

Q. Now, your tests, according to your testimony, might not reveal the presence of any disease carrying bacteria; now, do you know whether the use of a contaminated water supply might leave odors or tastes that might get into the milk?

1081 A. As I say, we have not come across any containers made that way. If you have a flavor of carbolic acid in the water, it might carry it into the paper.

Q. You are just confirming your testimony to the disease carrying germs?

A. Yes, to a sanitary point. A little flavor in the milk may not have any sanitary value.

Q. Any more than chlorine in the water here?

A. No. That is what I mean.

Q. It might affect the taste?

A. I am concerned mainly with the bacteriology.

Mr. Gariepy: You may cross examine. First, however, I want to offer in evidence these exhibits, plaintiff's exhibit 51 (page 2), plaintiff's exhibit 59 and plaintiff's exhibit 60.

Mr. Schaefer: Why not wait until the cross-examination is completed before offering them?

Mr. Gariepy: I offer them now.

The Master: I will receive them in evidence and you

may make your motion to strike them if you think they ought to be stricken. They may be received.

(Said sheets of typewritten material so offered were received in evidence and were marked, respectively, 1082 "PLAINTIFF'S EXHIBIT NO. 51 (page 2)," "PLAINTIFF'S EXHIBIT NO. 59" and "PLAINTIFF'S EXHIBIT NO. 60.")

The Master: Cross-examine.

Cross-Examination by Mr. Schaefer.

Q. In your direct examination, Doctor, you referred to certain lectures you gave to the inspectors of the Board of Health?

A. Yes, I did.

Q. What was the subject of those?

A. Chlorine sterilization, that is my recollection.

Q. Of what?

A. Chlorine sterilization of dairy utensils and dairy equipment.

Q. You covered only dairy sanitation in those lectures?

A. That is my recollection, the underlying principles of it.

Q. Did you discuss farm sanitation at all?

A. I don't recall, but my guess would be that I did.

Q. You testified with respect to a study concerning sanitary condition of paper mills you made in 1937?

A. 1937, 1938 and 1939, we visited a number of paper mills.

1083 Q. What mills did you visit in 1937?

A. In 1937 I visited the Detroit paper mills, Kalamazoo Vegetable Parchment Mills.

Q. Do they make paper for paper milk containers?

A. Not the Kalamazoo mill, they are specialists on making other types of containers for foods.

Q. What other mills did you visit in 1937?

A. I may have difficulty to answer just as to the date when I visited them. I visited those two. I visited those in 1937 and in 1938, during that year, we confined ourselves to Pure-Pak and we visited the Detroit mill; then about the end of the year visited the Cherry River Paper Mill.

Q. What mills did you visit in 1938?

A. In 1938 I visited two paper mills, the Regal Paper Mills in New Jersey.

Q. Do they make paper for milk containers?

A. Yes.

Q. What concern?

A. For the American Can.

Q. What others?

A. I think that is all I visited.

Q. In 1939 what mills did you visit?

A. In 1939 I did not visit any paper mill.

1084 Q. Then you have enumerated all of the paper mills.

Mr. Garipey: Wait until he finishes.

Mr. Schaefer: He answered the question, which was what mills. He said he did not visit any in 1939.

Q. You have enumerated all of the paper mills you visited?

A. Yes, I think so.

Q. The purpose of those visits was what?

A. In two of the paper mills I did bacteriological study.

Q. Why?

A. I was carrying on research.

Q. To determine what?

A. To determine the bacteriological problems connected with paper making.

Q. What bacteriological problems did you find?

A. I took samples right through, from the water, I took samples from the pulp and I took samples all in a row from the first to the last stages of paper making. I took the samples from the affluent water.

Q. As a matter of fact, what you were trying to ascertain was the possible sources of bacteriological contamination of paper in the paper mills?

A. Yes, except I would make it a little broader.

Q. How would you phrase it?

A. How would I phrase it?

1085 Q. That is how you phrased it on your direct examination. How would you phrase it now?

A. I was doing research work, control work, and I wanted to find out what the bacteriological problems are in the paper mill in terms of mill sanitation.

Q. Now, what problems did you find?

A. We examined the water.

Q. What I want to know is what are the sources of

bacteriological contamination, and then we will discuss what you did.

A. The water, the pulp, mainly those are the two principal sources of bacteria.

Q. What about the equipment in the mill itself?

A. The equipment may be also, if it is not kept in good order, it may also add some bacteria to the pulp as it passes through.

Q. How would that happen, Doctor?

A. Pardon me.

Q. How would that happen?

A. If, as the pulp and the water pass through the various vats, pipes and machines, there is a tendency for some of the pulp to stick to the edge, above the water line, and if it sticks there, bacteria may grow in it.

Q. As a matter of fact, pulp is a pretty good nourishment for bacteria?

1086 A. Bacteria will grow and increase if it is kept moist.

Q. It would be moist there?

A. Yes.

Q. Then what would happen?

A. Some of the pulp, of course—from that source some of the bacteria would enter the pulp mixture.

Q. Did you run into any problem in connection with a build-up of slime in any of those mills?

A. I did not see any, but that is a problem in the paper industry.

Q. Is the build-up of slime constant in a paper mill at all times?

A. If they don't practice certain procedures, it is apt to.

Q. What are those procedures, Doctor?

A. I can put it this way, if the pulp sticks to the walls and places like that, bacteria will grow in the pulp, and one type of bacteria that grows there is what we call slime producing bacteria, causing the pulp to stick together and to hydrolize it.

Q. Then that mass of pulp may fall down and join the other pulp passing through?

A. Yes.

Q. So that the problem of slime is not constant?

1087 A. No.

Q. It varies from day to day, week to week, and from month to month?

A. If I may make another sentence—

Q. Surely.

A. The problem of slime has been pretty well solved. In other words, the problem of slime is a manufacturing problem and the paper mills do all they can to prevent it, because the minute a bit of slimy pulp enters the flow of pulp, it shows itself in the paper, defect.

Q. You say that is a manufacturer's problem?

A. Yes.

Q. Is it a bacteriological problem, as well?

A. It is, fundamentally, because of the bacteria, a certain amount of bacteria.

Q. Do slime spots affect the bacterial content of the finished container?

A. It might.

Q. As a matter of fact, it would, invariably, wouldn't it?

A. It might if the slime forming organism is spore producing organism, there would be an increase in the paper.

Q. Invariably?

A. I think so.

1088 The Master: Q. Increase in the spore bearing bacteria?

A. In the number, yes, sir.

Mr. Schaefer: Q. That is what would happen—not might—Doctor?

A. I suppose your statement comes close to the facts, it depends on the formation of spores.

Q. At the mills which you inspected, the pulp was made by sulphite cooking process?

A. Sulphite process, yes.

Q. And then it was bleached?

A. Yes.

Q. In your opinion, is the sulphite process more or less sanitary than the process of manufacturing pulp by mechanical means?

A. I would be inclined to believe that the sulphite process of making pulp is more sanitary, or, you might put it—the process sterilizes the pulp, whereas, mechanically, it may not entirely.

Q. Does it make a difference whether or not the pulp is cooked, plated and made into paper in a continuous operation, from a sanitary point of view?

A. If you define "sanitary" as referring only to the

number of bacteria, there is a tendency, when pulp is made and bleached and then stored, a tendency for the few spore forms and what not to increase in storage age, the number of bacteria will tend to increase in the pulp from a bacteriological standpoint.

Q. And therefore, from the point of view of producing a paper container with a low bacterial count, the question of whether or not the operation is continuous is significant?

A. I would like to distinguish between sanitary phases.

Q. Answer the question. I made the distinction for you, in the question.

A. The question.

Mr. Schaefer: Read the question.

(Pending question read by Reporter.)

Mr. Gariepy: Do you understand the question?

The Witness: Yes.

Mr. Gariepy: Then, answer it.

The Witness: Except the word "significant" is a little strong.

Mr. Schaefer: Q. You don't understand what that means?

A. I understand what you say.

The Master: Q. Does it have any effect, and state whether it is continuous or not?

A. Pulp that has been stored a week or more in moist condition may produce paper with a larger number of bacteria.

1090 Mr. Schaefer: Q. Do you have an opinion as to whether or not public health officials should inspect the paper mills at which paper is made for use as paper containers?

A. I don't think it is necessary.

Q. When did you come to that conclusion, Doctor?

A. After studying the problem for two years and eight months and examining the paper.

Q. That conclusion differs from conclusions which you have expressed formerly, does it not?

A. I would like to hear the conclusion.

Mr. Schaefer: Answer the question.

The Master: Read the question.

(Pending question read by Reporter.)

A. I would like to hear the conclusion.

Mr. Gariepy: I think "formerly" goes pretty far.

Mr. Schaefer: Q. What do you call the statement you just made, Doctor—it is a conclusion?

A. You refer to some previous conclusion, I don't know what it is.

The Master: Q. Have you ever had an opinion that public health officials should inspect these paper producing places?

A. Not quite. May I explain?

Q. Yes.

A. I think not every paper mill is qualified to 1091 make paper, and some certification of some kind would be advisable eventually to permit paper mills to make paper for food handling, including paper milk containers.

Mr. Schaefer: Q. Why eventually, Doctor? Why not now?

A. Because our studies have been carried on, we have been helping the paper mills so that the paper mills that supply paper, produce absolutely sanitary paper without the necessity of inspection.

Q. Why should some form of certification be advisable eventually and not be advisable now?

A. It would be advisable. Sanitation is made up fundamentally—

Q. Will you answer that question?

A. I was going to come to it.

Mr. Schaefer: Please read the question.

(Question read by Reporter.)

A. From a sanitary standpoint, it is not essential.

Mr. Schaefer: Will you please read the question again?

(Question again read by Reporter.)

Mr. Schaefer: Q. Please answer the question and we will get along.

A. Sanitation employs two things. I am trying 1092 to answer your question, because you can't say yes or no on that. It employs first freedom from disease germs. It employs reduction in miscellaneous kinds of bacteria. It employs cleanliness, those three things, from the standpoint of freedom from disease bacteria and freedom from bacteria, miscellaneous number of bacteria.

This is accomplished, we are getting paper that does not need inspection. From the standpoint of aesthetic cleanliness, it is advisable that paper mills be eventually put on good basis on some sort of certification.

Q. It is not advisable at the present time?

A. It is advisable, yes, as soon as things can be organized.

Q. Doctor, in the paper which you read before the 26th Annual Meeting of the International Association of Milk Sanitarians, Louisville, Kentucky, held October 11 to 13, 1937, you made this statement, did you not:

"Milk sanitarians should inspect paper mills and check on the pulp".

A. If you say I made it, if it is there I did.

Q. Did you make it?

Mr. Gariepy: He says if it is here he did.

A. If it is printed, I made it.

Mr. Schaefer: Q. Well, is it? Look and see.

1093 A. Apparently I made it.

Q. That expressed your view at that time, did it?

A. Somewhat, yes.

Q. In what respects did it and in what respects didn't it?

A. Because in any problem of this kind, complicated problem, there are so many branches and angles to the problem, that the only thing you can do, if you want to publish anything, is to present what we call a report of progress of the work, and with the stipulation that you may have the privilege of modifying your conclusions, as the accumulation of the tests go on.

Q. Where is that stipulation here, Doctor?

A. That is in all experimentation. This was more or less progress of experiment than final. I said milk sanitarians should inspect paper mills and check on the paper.

Q. At that time why was it your opinion that milk sanitarians should inspect mills and check on the pulp?

A. Because when I first visited paper mills, some of the paper mills, some of them are the same way.

Q. Some are what?

A. Some of the paper mills, from an aesthetic
1094 standpoint they are all high class, speaking from a standpoint of comparing them to dairy control, dairy sanitation.

Q. They should be compared to dairy sanitation?

A. Yes.

The Master: Q. How can you tell which ones are and which ones are not, unless you inspected them?

A. Well, the inspection, we have worked particularly with the Cherry River Paper Mills, Dr. Sanborn of Geneva, and we have suggested changes.

Q. From an aesthetic point of view?

A. From complete standards, aesthetic and bacteriological, with the result that the paper mill produces high class sanitary product. I don't think it is necessary to go there to keep on inspecting it, aside from getting certification that the paper produced there is produced there, so that the health inspector has a check on it. They should report to somebody somewhere. They do. Samples are taken of paper, and examination made. They put a stamp on so that we know the paper was made there. I don't think it is necessary for the health officer to go there and keep on regular inspection as on the dairy farms.

Mr. Schaefer: Q. What suggestion did you make at the Cherry River Mill?

1095 A. Well, we studied the water.

Q. What suggestions did you make there, Doctor?

A. We suggested that they put plenty of chlorine in the last treatment of the paper by water.

Q. Do you mean at the calender stacks?

A. Yes.

Q. How will you determine whether or not plenty of chlorine is put in the water at the calender stacks unless you inspect them?

● A. We don't do it by inspection. We inspect once in a while and the rest of the test, they do it according to suggestions. We have to trust the corporations.

Q. You what?

A. We have to trust, in this question of sanitary control, the milk plants.

Q. Do you call the sanitary control of milk farms and milk pasteurization plants conducted by the City of Chicago a matter of trust?

A. Yes.

Q. You do?

A. To some extent. Your inspector goes on the farm once in two or three months and the rest of the days the farmers do it themselves.

Q. What inspector goes on a farm once in fifteen months?

1096 Mr. Gariepy: He didn't say fifteen months.

Mr. Schaefer: Q. You don't know anything about it.

Mr. Gariepy: I object. He didn't say anything of the kind.

Mr. Schaefer: He is going to say that in a minute.

The Master: Go ahead now, put another question.

Mr. Schaefer: Q. Do you have any knowledge as to how many times farms producing milk for consumption in Chicago are inspected by employes of the Board of Health of the City of Chicago?

A. I couldn't tell you exactly, depending on the farm and what they do there, as I understand.

Q. Do you have any knowledge?

A. Yes, I have some knowledge.

Q. How did you obtain that knowledge?

A. Talking with Mr. Kreuger and with the Board of Health.

Q. Did Mr. Kreuger ever tell you they inspected farms at fifteen month intervals?

A. I didn't say that.

Mr. Gariepy: You said that, Mr. Schaefer.

Mr. Schaefer: The record will show what he said.

Q. Did Mr. Kreuger ever say that to you?

A. Not fifteen months, no.

Q. Do you know of your own knowledge how frequently pasteurization plants in the City of Chicago are inspected?
1097

A. No.

Q. Do you know how frequently farms producing milk for consumption in the City of Chicago are inspected?

A. They follow—

Q. Do you know, of your own knowledge?

A. I don't know.

Q. All right. That is the only question pending, Doctor.

A. I would like to modify it.

The Master: Go ahead and modify it.

A. They follow the United States Public Health Ordinance, I understand.

Q. Do you know anything other than what somebody has told you?

A. Except what Mr. Kreuger told me.

Q. That is what I just asked you, do you know of your own knowledge?

A. I did not investigate.

Q. You have not been out there to look at the plants and you have not been waiting to see the inspectors come around?

A. No.

Q All that you know is what somebody at the Board of Health told you, and is that Mr. Krueger?

A. Mr. Kreuger and also from farmers.

1098 Mr. Schaefer: Q. You made this statement in the same article, Doctor:

"The milk sanitarian should inspect and develop some score card for the mill where the paper is made."

A. Desirable.

Q. I read you what it said:

"The milk sanitarian should inspect and develop some score card for the mill where the paper is made."

The Master: You are reading from what?

Mr. Schaefer: The same pamphlet I last referred to.

Q. What do you mean by that statement?

A. I mean to develop some standards, as Dr. Breen had been developing.

Q. How would a score card develop a standard? What do you mean by a score card?

A. It enumerates—any score card enumerates the equipment used, whether the plant complies with the minimum requirements as to the equipment, and it specifies procedures.

Q. Could you have a score card unless you had regulations with respect to which the scoring would be made?

A. I didn't catch the question.

The Master: Read it.

1099 (Question read by the Reporter.)

A. I should say score card would imply sort of a group of requirements.

Mr. Schaefer: Q. You would have to score something, wouldn't you?

A. Yes.

Q. What other suggestions did you make at the Cherry River Mill?

The Master: Q. You mentioned one about chlorining the water?

A. Yes.

Q. What else?

A. I suggested that it would be a good thing if they made the paper in a continuous operation, rather than making the pulp and two or three days later taking the pulp and then making the paper.

Mr. Schaefer: Q. A good thing from an aesthetic point of view?

A. From an aesthetic standard, well, from reducing the bacteria.

Q. How would you determine, without inspection, whether or not that suggestion were complied with?

A. By examination of the paper.

Q. You could tell from the examination of the paper whether or not it was made in a continuing operation?

1100 A. Probably.

Q. You could?

A. Well, if the paper meets the standards, bacteriologically.

Q. Doctor, that is not what I asked you. I asked you whether from a test made of the paper you could tell whether or not it has been made in a continuous operation?

A. You may, and you may not, one hundred percent.

Q. In other words, you can't?

Mr. Gariepy: I object. He has answered. He said you may and you may not.

The Master: Overruled.

Mr. Schaefer: Please read the question.

(Question read by the Reporter.)

A. If the pulp—it is awfully hard to answer a question like that, unless you go a step further. I don't think you could in all cases.

Q. All right, what other suggestions did you make?

A. Well, we suggested that the apparatus throughout the paper mill that handles the paper be put in better clothing.

Q. What?

A. Be dressed in the manner as operators in milk plants are.

1101 Q. Do you mean to wear cleaner clothes?

A. Yes.

Q. How could you determine whether or not the people at the paper mill were wearing clean clothes, without an inspection?

A. I didn't hear the question.

Mr. Schaefer: Read it.

(Question read by the Reporter.)

A. No.

Q. That is, you could not?

A. No.

Q. What other suggestions did you make?

A. I think that is about the extent of the suggestions we raised there.

The Master: You said something about objections or suggestions that might have to do with bacteria, and some that might be merely aesthetic.

The Witness: Yes.

Q. You did not detail the aesthetic suggestions?

A. The last one is an aesthetic.

Q. Are there any other aesthetic suggestions you had?

A. General clean-up, floors and outside of the equipment, we also raised that.

Mr. Schaefer: Q. How could you determine whether that was complied with, without an inspection?

1102 A. We know that it does—without you yourself went there as an inspector?

Q. You couldn't tell?

A. No.

The Master: Q. You couldn't what?

A. You couldn't tell whether they did it or not, by not visiting the paper mill.

Q. You went there for the purpose of carrying out a research concerning bacteria?

A. Yes.

Q. How were you interested in the aesthetic end of it?

A. That is part of sanitation. I presented the case to the company, stating that sanitation implies also an aesthetic phase, that we don't like to have a sandwich handled by dirty hands, like a man dressed nicely when he serves us food, although it may have no relation to sanitation.

Q. Were you there to gather material for the purposes of research, or there as an adviser?

A. Both, we were there to carry on research and, at the same time, we tried to give them what we considered some of the things that should be required.

Q. Who is the "we"?

A. I was there with Professor Tracy at that time.

1103 Were you doing this for the university?

A. Yes.

Q. Or were you being retained by the paper company?

A. No. I did not receive one cent from the paper company. I was interested in this whole question of paper containers and the sanitary and aesthetic angles, and that is just one of our duties, to help milk plants and farms or

anybody connected with the dairy industry, to advise them what they should do to set it up on a high standard.

The Master: Go ahead.

Mr. Schaefer: Q. Now, did you make any other suggestions?

A. So far as I remember, that was about the principal thing. Those were the principal points that we raised with them.

Q. This paper to which I referred is a report of a paper read before the International Association of Milk Sanitarians?

A. Yes.

Q. Are milk sanitarians equivalent to public health officials, interested in the sanitation of milk?

A. Yes, fundamentally, the organization is, the members are, most of them, all of them probably interested in milk and dairy sanitation.

1104 Q. Most of them are public health officers?

A. Probably a large percentage of them.

Q. Where in this article did you indicate to them that you were talking from an aesthetic point of view with respect to milk inspection?

A. I don't think I said anything.

Q. You did not indicate that?

A. No.

Mr. Gariepy: I object. The article speaks for itself. Are you offering it in evidence?

Mr. Schaefer: When I get ready to, I will offer it, if I see fit. Until then, I will handle it this way.

Mr. Gariepy: All right.

The Master: Is there a question pending?

Mr. Schaefer: No.

Mr. Gariepy: I object to any cross-examination on it unless the document is offered and received in evidence. He is going into something entirely different.

The Master: Overruled.

Mr. Schaefer: Q. You expected these people who heard you read that paper, and who read the paper when subsequently published, to consider that these were your suggestions made as a professor of bacteriology?

1105 Mr. Gariepy: I object to what his expectations were. It has no bearing on this case and it is not binding on the Master what they were.

The Master: Overruled.

Mr. Schaefer: Please read the question.

(Question read by the Reporter.)

The Master: Do you understand the question?

A. Yes. We got information and gave information to them and they can do what they please with it. That doesn't quite answer you.

Mr. Schaefer: Q. No, it doesn't, Doctor. You can do better than that.

The Witness: Read the question, please.

The Master: Read the question again.

(Question again read by the Reporter.)

A. Yes, I think that is reasonable.

Mr. Schaefer: As a professor of bacteriology, reporting on research conducted on a project of the University of Illinois.

The Witness: This was a part of the project, yes.

Mr. Schaefer: Q. What caused you to change your mind?

The Master: About what?

Mr. Schaefer: The witness understands—about his conclusions, whether or not paper mills should be inspected.

1106 The Master: All right.

A. I have changed my mind only partly, and what caused me to change my mind was—

Mr. Schaefer: Wait a minute, Doctor.

Mr. Garipey: He is telling you now.

Mr. Schaefer: Q. Let's find out where you stand now, Doctor, at the present time?

A. At the present time?

Q. Wait a minute. At the present time, from a public health point of view, do you believe that paper mills should be inspected by public health officials, when those mills are producing paper for use as milk containers?

A. My opinion is that, as stated before, some agency should certify the paper mills, but it is not necessary for every board of health, before paper is sold, for a health officer to go through and inspect.

Q. You're talking about mechanics, Doctor, and I am not interested in that. I am interested in whether or not, from the point of view of the inspection of the public health officials, the paper mills which do distribute its products for use as milk containers should be inspected?

A. From a standard—

Q. I am not asking you who does the inspecting, you understand?

1107 A. From the public standpoint.

Q. I am asking you from the standpoint of the public health?

A. Repeat the question, please.

(Question read by the Reporter.)

Q. I am asking you whether or not, from the point of view of protection of public health, the paper from which paper containers for milk are produced should be inspected?

A. Yes, it doesn't need to be inspected from paper mills that supply paper now.

Q. Doctor, I don't consider that a complete answer to the question.

A. Why?

Mr. Gariepy: Where is it unsatisfactory or insufficient, tell us, so the witness can give you further answer.

Mr. Schaefer: Q. What are the paper mills?

A. The paper mills that supply the paper for the Pure-Pak Containers.

Q. The paper mills that supply the paper for the Pure-Pak Containers?

A. Yes, sir.

Q. What are those?

A. One mill, now.

1108 Q. Is that so?

A. Yes.

Q. You were not here last week when Mr. Fisher testified that the Gardner-Richardson Company in Ohio is now manufacturing paper for Pure-Pak Containers, were you?

Mr. Gariepy: I object to that. He didn't say he was selling it to the plant in question. I move that this cross-examination concerning this matter be deleted and stricken and ask the Master to rule that further cross-examination about Mr. Fisher, concerning selling paper board to the Fieldcrest Dairies go out. Cross-examination as to that matter has been so held by the Master, and the objection was sustained, because he said he was not selling it to us.

The Master: Did he say he was not selling it?

Mr. Gariepy: Yes, we never bought any paper board.

The Master: Assuming that he did so testify, you can use that in arguing as to this witness' testimony.

Mr. Schaefer: Fisher testified that the Gardner-Richardson Company was manufacturing paper for use as Pure-Pak Containers, that they started from the time of his first

appearance here as a witness, and his remembrance on that, which was, as I remember, last week, he testified they did not sell any paper to the Fieldcrest Dairies. Dr. 1109 Prucha has just testified now that only one mill manufactures paper for use in Pure-Pak Containers. That is what I am directing my question to at the moment.

The Master: If the Fieldcrest does not use any of this paper, how is it material whether it is being manufactured by Pure-Pak Containers or for some one else?

Mr. Schaefer: From whom will they buy tomorrow?

The Master: What is your question?

Mr. Schaefer: I asked him—

The Master: You asked him if he knew. There is no controversy, is there, Mr. Gariepy, that this Ohio concern is manufacturing paper for the Pure-Pak Company, although the Fieldcrest Dairies are not getting any of that paper.

Mr. Gariepy: They are not using any of their paper today.

The Master: Although it is possible or conceivable that they might, in the future.

Mr. Gariepy: It depends on what we decide to do about the board.

Mr. Schaefer: In view of the fact that the Gardner-Richardson Company of Middletown, Ohio is now producing paper for use as Pure-Pak Milk Containers, do you believe that paper mills producing paper for those 1110 containers should be inspected by public health officials?

Mr. Gariepy: I object to that, for the same reason.

The Master: Overruled. You may answer.

A. Yes, some inspection or some certification is desirable.

Mr. Schaefer: Q. Isn't it desirable, also, in the case of the Cherry River Company?

The Master: He stated some certification is desirable, which necessarily implies some sort of certification or some sort of inspection before certification can be had. He didn't say by whom.

Mr. Schaefer: Q. Certification by whom, Doctor?

A. You could have it done by the United States Public Health Service.

Mr. Gariepy: Let him answer. Go ahead.

A. By some individual that would be agreed upon who

knows the industry as well as the sanitary phases that would be agreed upon by the industry as well as by the sanitary organization or organizations.

Mr. Schaefer: Q. Is that a common public health practice to have a man representing the industry to make certification as to conditions that may affect public health?

A. He would not represent the industry. I didn't say that.

1111 Q. I misunderstood you.

A. One that knows the industry and the problems of the industry.

Q. But the man who should inspect the paper mills should be a public health officer?

A. He should be a man agreed upon, it seems to me, by the public health interests and also by the party that is being inspected, to get the most out of the inspection.

Q. Where in the field of public health has that technique of having inspection made by a person agreed upon to do the inspecting?

The Master: If you know, say so, and if you don't know, just say you don't know.

A. Offhand, I don't know.

Mr. Schaefer: Q. You don't know of any such instance?

A. Except that inspections are permitted when it is inspected by some health officer, and it is accepted by another organization.

Q. That has nothing to do with the question of whether or not the inspector is agreed upon by the person to be inspected?

A. My answer to that would be that it is immaterial.

Q. You are not answering anything, Doctor. The question was whether or not you were familiar with that
1112 technique anywhere in the field of public health administration?

A. I would say, offhand, I don't recall any setup.

Q. You have been working in the field of milk sanitation for some thirty years, as you testified?

A. I never thought of that point.

Mr. Schaefer: Would it be agreeable to suspend at this time, Master?

The Master: We will suspend until 2:00 o'clock, p. m.

(Thereupon, recess was taken until 2:00 o'clock, p. m. on the same day, September 19, 1939.)

1113

• • (Caption—) • •

Tuesday, September, 19 1939,
2 o'clock p. m.

Met pursuant to recess.

Present:

Mr. Gariepy,
Mr. Rall; for Plaintiff.
Mr. Schaefer,
Mr. Horan, for Defendant.

1114 The Master: Are you ready to go ahead?
Mr. Schaefer: Yes.

M. J. PRUCHA, a witness called on behalf of the plaintiff,
having been heretofore duly sworn, resumed the stand
and testified further as follows:

Cross-Examination by Mr. Schaefer (Continued).

Q. Dr. Prucha, in the case of the inspection of paper mills at which paper is produced for use in paper containers for milk, why should the inspection be made by a person agreed upon by the mill to be inspected?

A. I didn't say exactly it should. That was my suggestion, that it might be advisable.

Q. Why is it advisable?

A. As a rule, sanitarians don't know anything about paper mills or any industry where there are problems which have to do with things of practical necessity, that a health inspector will not appreciate.

Q. You mean, regardless of the sanitary significance of the things that they do?

A. Well, I wouldn't say it that way.

Q. How would you say it?

A. I would say that the fundamental sanitary features of the operations, there should be no compromise on anything there, but outside of the fundamental sanitary features there are a great many things that are often required in an industry, or apt to be required by a man who does not know enough of the industry, who be-

1115

comes what we call a swivel chair artist, not a practical man.

Now, I would say that in the paper making, the sanitary phases, irrespective of anything else, as I pointed out, the treatment that pulp receives when the paper comes off the roll is sanitary, irrespective of what happens there from a real sanitation standpoint. If it has too many bacteria, we can catch it. As to the number of bacteria in the paper, it is sanitary from a pathogenic standpoint.

Q. How can you catch it as to the number of bacteria in the paper?

A. By the test, by disintegration test in the paper.

Q. The sanitary quality of the paper is not uniform, is it?

A. Necessarily not.

Q. Then how can you catch it by disintegration tests?

A. The sanitary quality of paper, as I stated, when it leaves the roller, the paper is sanitary from the standpoint of pathogenic bacteria. From the standpoint of the 1116 number of bacteria in the paper, by the method we have, we can determine that, and not only the paper, but the finished container. We can apply—

Q. But, Doctor—

Mr. Gariepy: Let him finish.

Mr. Schaefer: Q. If the sanitary quality is not uniform, how can you determine the quality by a disintegration test?

A. You are using the words "sanitary quality." I think we ought to define it, so you and I understand what we are talking about.

Q. All right, I will say bacterial content. Do you understand that?

A. Yes.

Q. All right.

A. It has not been uniform. Nothing is uniform.

Q. We are talking about the one thing now.

A. Yes.

Q. Let us confine ourselves to that one thing.

A. Yes.

Q. How can you determine the sanitary quality of the paper by a disintegration test or, rather, the bacterial content of paper by a disintegration test, if the bacterial content is not uniform? It is that simple. Answer it, can you?

1117 A. Your question floors me, because I don't know how to answer that. We determine the sanitary quality of a paper container, a milk container—

Q. We are talking now about the bacterial content, Doctor.

Mr. Gariepy: I object. He is answering the question, or he started to answer it.

The Master: Go ahead.

Mr. Gariepy: Finish it.

The Witness: A. By this method, by determining the number of bacteria in the paper.

Mr. Schaefer: Q. By the disintegration method?

A. It is one of the methods.

Q. If the bacterial content is not uniform, how can you determine it by the disintegration tests?

A. By determining the number of bacteria in it.

Q. On that sample?

A. Yes.

Q. But that does not determine the bacterial content of any container other than that one sample?

A. Well, Mr. Schaefer—

Q. Is that right, Doctor?

Mr. Gariepy: He is answering you. Wait a minute. Let him answer.

The Witness: A. Any determination in scientific work, we always reason from specific to general. We examine it and conclude the rest of the thing is all right. If paper is made from the same pulp all the way through, if you take three or four or ten samples all the way along the road and examine them, there will be variations, several variations. It is a matter of determining. Irrespective of whether it varies, it is a matter of determination of bacteria.

Mr. Schaefer: Q. How many samples should you disintegrate to determine the bacterial content of a ton of paper board?

A. If it is made continuously, it seems to me three or four samples, and not even that many.

Q. How many?

A. I should say one sample would be sufficient, taken as it comes off the rollers. A ton of papers comes off the rollers in a very short time. Take a sample.

Q. How large a sample?

A. That is a matter of choice.

The Master: Q. What would you choose?

A. The final disintegration, you have to use a small sample.

Q. How big?

A. I use two or three grams as the most convenient.

1119 Mr. Schaefer: Q. How large in inches is that?

A. Pardon me?

Q. How large in inches would that be?

A. Say a two-by-four-inch piece is a fairly good sized sample.

Q. Two by four inches?

A. Yes.

Q. And you would use one of those to determine the quality of a ton of paper?

A. If the paper runs off continuously, I think it would be sufficient to tell you the condition of the paper.

Q. Now, in your work, Doctor, you encountered brownish patches under the paraffin of the finished container, did you not?

A. Yes.

The Master: Have encountered what?

Mr. Gariepy: Brownish patches.

The Master: Go ahead.

Mr. Schaefer: Q. Those were in the paper, under the paraffin?

A. Yes.

Q. And those were apparent by a visual examination of the paper?

A. Yes.

Q. And you made bacterial counts of the paper which contained those brownish patches, didn't you?

1120 A. Yes.

Q. And those containers uniformly showed a higher bacterial count than other containers which were free from those brownish patches, is that right?

A. Not uniformly. There was a tendency—when you have a patch of imperfection in the paper, as we mentioned this morning in regard to the sliminess, you are apt to have higher bacterial counts.

Q. Yes.

A. However, I might add I have not found a single—

Q. You don't need to add anything, Doctor.

Mr. Gariepy: He doesn't want any additional information, Doctor. I will have to ask it on redirect.

The Witness: All right. I am trying to formulate—

The Master: You have answered the question. There is nothing pending now.

The Witness: Yes..

Mr. Schaefer: Q. What causes those brownish spots, Doctor?

A. I don't know personally. I have an idea.

Q. From what do they appear to be caused?

A. They appear to be caused by the slimy bacteria in most cases, I think. A piece of pulp that may adhere somewhere, and these slimy bacterial growths tend to digest the pulp, changing the color of the pulp.

Q. That may cause a hydrolytic change in the pulp?

A. That is my opinion.

Q. What do you mean by a hydrolytic change?

A. Pulp is wood cellulose, and in wood cellulose there are some bacteria, not many, that will live on the wood cellulose, producing enzymes, which digest the pulp.

Q. That is, it causes decomposition of the finished paper?

A. Yes.

Q. And by disintegration tests made as the paper comes off the roller, could you determine whether or not any of those brownish patches were present throughout that ton of paper?

A. I would say that if you examined the patch you can tell there would be apt to be more bacteria on that piece of paper.

Q. Yes, if you happen, by the laws of probability, to secure, out of a ton of paper, in your two-by-four sample which you disintegrate, one of those patches, you would be able to tell, isn't that right?

A. Yes, I think so.

Q. And if you happen, by the laws of probability, not to secure one of those patches, you wouldn't know?

A. No.

1122 Q. Is that right?

A. That would be true, except in the final examination of the container, if you happen to get it.

The Master: Q. Would there be any bacteria in this patch?

A. I don't believe there was bacteria in every patch of those that I examined. As I stated, there is a tendency that

those patches will harbor some of the bacteria that caused the patch.

Q. Did you ever find any of those patches?

A. I thought so, yes. In other words, there was a higher count in the finished product.

Q. I thought you said that the effect of the heat in the roller or the steam would kill all bacteria.

A. These seem to be mostly spore-forming organisms.

Q. You are now talking about spore-forming organisms?

A. Yes.

Q. Just define again what you mean by spores.

A. There are certain species of bacteria that produce spores, where they live.

Q. What do you mean by spores?

A. Bacteria shrinks in size and becomes dormant. That is a spore, and the spores are very difficult to kill with heat.

Q. You say bacteria shrink in size?

1123 A. Yes.

Q. And form spores?

A. Yes.

Q. They are bacteria then, aren't they?

A. Oh, yes. They are dormant, a dormant stage of bacteria.

Q. Now, a question was asked here just what type of bacteria is more dangerous to health, the spore-forming or non-spore-forming.

A. Non-spore-forming.

Q. They are the more dangerous?

A. Yes. These organisms are, as far as I know, spore-forming.

Q. That is, the organisms that are in these brownish patches?

A. Yes.

Mr. Schaefer: Q. What test did you make to determine that fact, Doctor?

A. Pardon me.

Q. What test did you make to determine that fact?

A. Whether they are spores or not?

Mr. Gariepy: Spore or non-spore.

The Witness: Spore or non-spore?

Mr. Schaefer: Q. Yes.

A. It is a laboratory test. You take the—if you work in a laboratory for thirty odd years, you can recognize

most of them just by looking at them. In addition to 1124 that, you can examine the colony under a microscope. That is the simplest method.

Q. What suggestions did you make when you inspected the paper mill at Detroit?

A. I suggested that they chlorinate the water higher than they did.

Q. For esthetic reasons?

A. No.

Q. Why?

A. To make the water what might be called sanitary, fit to drink.

Q. I thought you testified this morning that the sanitary quality of the water was a matter of no significance.

A. Well, in a way that is true.

Q. In what way is it true and in what way is it not?

A. It is true no matter what water you have. If there are any pathogenic bacteria in that water and the water is mixed with the pulp, you will not find any pathogenic bacteria in the finished paper.

Q. Well, is it or is it not a matter of sanitary significance?

The Master: What is that?

Mr. Schaefer: Let me rephrase that.

Q. Is the sanitary condition of the water used in the paper mill of any sanitary significance with respect to the manufacture of paper containers for the distribution of milk?

1125 A. It is of sanitary significance in a circumstantial way.

The Master: Q. What do you mean by that?

A. By that I mean this: That if they have very polluted water in every faucet in the mill, the water spreads around in the plant, or is apt to, and if there is diseased bacteria in that water, it will tend to—they may appear on the floor, and so forth, as a result of water dripping on, and in handling things, so I do not recommend that paper be accepted from a plant where they do not have clean water.

Q. You mean that the water that would actually get into the paper itself, in the course of manufacture, might not be contaminated, but that contamination from that water might get upon the surface of the paper, after it had been manufactured?

A. That is it. I think so. Yes, that is what I mean. It might, and I agree with you that I don't think we need to take paper from a mill which has bacteria of that kind.

Mr. Schaefer: I haven't expressed any opinion at all, Doctor.

The Witness: Pardon me?

Mr. Schaefer: I have not expressed any opinion.

The Witness: Yes.

1126 Mr. Schaefer: Q. Now, you testified that the paper was completely sterilized while going over the rollers.

A. Yes.

Q. In a mill in which there was B-coli or sewage bacteria present in the water.

A. Well—

Mr. Gariepy: Just answer the question.

The Master: Read the question first.

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Master: What is the answer?

The Witness: A. Yes.

Mr. Schaefer: Q. How long were you at that mill, Doctor?

A. I was there on three different occasions. At one time I spent a week there.

Q. All right. Now—

The Master: What mill is this?

Mr. Schaefer: The mill at Detroit.

Mr. Gariepy: Q. Is this the Detroit mill, Doctor?

A. Yes.

Q. Tell the Master.

A. Yes, at Detroit.

Q. Be specific.

A. It is the Detroit Sulphite Pulp and Paper Mill Company.

Mr. Schaefer: Q. Now, did you take samples of 1127 the water at the calendar stacks of that mill?

A. Yes.

Q. What did you find there?

A. It was the same as the rest of the water.

Q. That is, you found sewage there?

A. We found coli germs in it, yes, the first time we were there.

Q. What sterilization does the paper get after it gets its treatment at the calender rolls?

A. None, except the natural drying.

Q. Do you feel, Doctor, as a professor of bacteriology, that the sanitary quality of that water is of no significance?

Mr. Gariepy: I object. He just answered that, what he thought the significance was.

The Master: Let him answer.

Mr. Schaefer: Read the question to the doctor.

(Mr. Schaefer's last question was read by the reporter as above recorded.)

Mr. Gariepy: I am renewing my objection, Master, on the ground it has already been answered.

The Master: Let him answer it again. Go ahead.

The Witness: A. It is and it is not.

Mr. Schaefer: Q. Go ahead and explain, Doctor.
1128 A. As I said before, the paper, after it is subjected to the hot rollers, will not contain any of the germs of the coli in the paper. They are killed by the heat. In the paper mill itself, if water highly polluted is allowed to be used all through the paper mill, there is an objection there. I would say it is an unsanitary feature in the paper mill.

Mr. Schaefer: Now will the reporter read the witness the question, please?

The Master: I believe he has answered it.

Mr. Gariepy: It is the third time he has answered it this afternoon.

The Master: All right. Let us not make too much record here.

Mr. Schaefer: I would like to have the question and answer read for my own information. If he answered it, I missed it.

The Master: Off the record now. Let us not clutter up the record.

(Discussion off the record.)

Mr. Schaefer: Read the last question.

(The question referred to was read as follows: "Do you feel, Doctor, as a professor of bacteriology, that the sanitary quality of that water is of no significance?")

1129 The Witness: A. I have answered it partly.

Mr. Schaefer: Q. By that water I mean the water used at the calender stacks.

A. I am referring to the water used in that last treatment of the paper, and my opinion is that it is of significance from a sanitary standpoint, if it is polluted.

Q. Why didn't you mention that on your direct examination?

Mr. Gariepy: I object to his arguing with the witness. The witness has answered it.

The Master: Overruled.

The Witness: A. It is of significance to the extent that it will contaminate the paper.

Mr. Schaefer: Q. Why didn't you mention that on your direct examination, Doctor?

A. Search me. I don't know.

Mr. Gariepy: On direct examination I didn't ask him anything about that.

The Witness: Except in addition to it, I would say—

Mr. Schaefer: Never mind.

The Master: Go ahead, if you want to finish it.

The Witness: A. I would add that the paper, as I pointed out, upon drying again will purify itself, so one or two days after it reaches the carton company you 1130 will not find any of those bacteria in it.

Mr. Schaefer: We will come to that, Doctor.

The Witness: All right.

The Master: Q. Just to make the record clear at this point, just what is a calender stack?

A. When paper comes over the hot roller, it is rough, somewhat.

Q. Yes.

A. So to finish it they iron it. They spray or put a little water on it at this point and then again it goes over the hot roller to give it a smooth surface, that is for the calendering.

Q. I understood here off the record that after the calender operation is over or while it was being conducted water was being put upon the paper.

A. Yes.

Q. And that no more heat is put upon it.

A. The rollers are again warm. They are not as hot as the others.

Q. Then the calendering operation would not kill any germs, would it?

A. It kills some. I did not determine that.

Mr. Schaefer: Q. Doctor, you believe that medical

inspection of employees handling the paper in a paper mill should be made, don't you?

A. Yes.

1131 Q. Do you believe also that medical inspection of the employees handling the paper in the carton manufacturing company, what we call here the conversion plant, should be made?

A. Yes.

Q. You believe that certain steps should be taken to see that the paper is properly protected when it is being shipped from the paper mill to the conversion plant, do you not?

A. Yes.

Q. And you believe, similarly, that adequate measures should be taken to protect the containers after they are formed at the conversion plant, do you not?

A. The regular care necessary for the purpose.

Q. You conducted some experiments to show the relative bacterioidal effect of paraffin and water under equivalent temperatures, didn't you?

A. I made one run, one or two runs on water.

Q. And what was the result of those experiments?

A. I have forgotten what the results were, exactly. I could not quote the figures.

Q. The result was this, was it not, Doctor: The results showed that the hot water treatment is more effective than the paraffin treatment?

A. Yes.

1132 Q. The difference is very pronounced?

A. Yes.

Q. Water at 150 degrees Fahrenheit is more effective than paraffin at 190 degrees Fahrenheit?

A. For the same time.

Q. That statement is correct?

A. Essentially it is correct, as far as I have been able to figure out from the data we accumulated up to that time.

Q. That statement was sufficiently correct so that you were willing to submit the results of that work to the milk sanitarians at their international convention?

A. I felt it expressed the general picture of the problem.

Q. You didn't say that in your article, did you, Doctor?
Mr. Garipey: Say what?

The Witness: I didn't get that.

Mr. Schaefer: Q. You didn't say that those tests showed merely a tendency in your article, did you?

A. I was giving the results of some tests on that paper.

Q. Have you performed any tests that indicated different results?

A. Yes, some are different.

Q. Now, what were those?

A. Well, this was done two years ago.

Q. Which?

A. The result that is reported here.

1133 Q. Yes.

Mr. Gariepy: Referring to this Louisville paper?

The Witness: Referring to this Louisville paper, yes. We have examined—I had eight men running the tests at various times, in addition to myself.

Mr. Schaefer: Q. What tests?

A. This test on the temperature, influence of temperature.

Q. I haven't asked you anything about the influence of temperature, Doctor.

A. Pardon me.

Mr. Gariepy: I object. He did, Master. He asked the witness if he ran any additional tests since this time and the witness started in to answer and then he says, "I haven't asked you anything." I don't understand that type of cross-examination.

The Master: If the witness understands him—

Mr. Gariepy: Do you understand? He asked you about tests, Dr. Prucha.

The Witness: If we had made additional tests?

Mr. Gariepy: Yes, that is right.

The Master: Just a minute. This is off the record.

(Discussion off the record.)

The Master: Put another question now and start all over again.

1134 Mr. Schaefer: Q. What other tests have you performed, in addition to those reported in your Louisville paper, with respect to the relative bacteriacidal effect of paraffin and hot water at equivalent temperatures?

A. In respect to relative importance, efficiency, I might say, of hot paraffin and hot water on the destruction of bacteria, we did not continue that particular phase of the experiment.

Q. Have you performed any other tests designed to show the relative efficiency, from a bactericidal point of view, of hot water and paraffin, at equivalent temperatures?

A. Not enough to report. We were concerned with paraffining only.

Q. Then the information which I have just quoted to you from your own article is the only information which you have sufficient confidence in to submit to milk sanitarians on this subject?

A. On the subject of the comparative efficiency of water and paraffin, that is about the only—

Q. That is all I am asking about, Doctor.

A. Yes, that is the only thing.

Q. Is that right?

A. Yes, that is about the only experiment. We did 1135 not think it was necessary to run it.

Q. Now, from a public health point of view, Doctor, at what temperature and for what length of time do you believe that paraffin should be applied to paper containers to be used for the distribution of milk?

A. It is a very hard question to answer in a few words, unless you go into a discussion of it.

Q. Now, I have asked you the question, at what temperature and for what time.

The Master: Read the question.

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Witness: A. In a certain sense I have difficulty in answering the question. A problem like that is very complicated and you require a tremendous amount of evidence and experimentation before you finally arrive at a satisfactory conclusion.

Mr. Schaefer: Q. I see. And that evidence is not available?

A. Well, it is, in a way, the best we have. The evidence is this: That paraffining is done primarily for the purpose of making the paper impervious to milk.

Q. Doctor, I can help you out a whole lot. When I asked that question I said from a public health point of view. I have not asked you about any manufacturing difficulties. If you will just eliminate that from your mind, you can answer the question simply.

A. Again, the paper as it arrives in the paper plant or milk plant, in the case of this container, already has received—

Q. Just a minute, Doctor.

The Master: Do you want the question read or do you want to repeat it?

Mr. Schaefer: Q. The question I am asking you requires two figures for an answer. At what temperature and for what time do you believe this paper should be paraffined, when it is to be used for milk containers, considering the problem from a health point of view?

A. I believe that a temperature of—

Q. Should be what?

A. A temperature of 170 Fahrenheit, the temperature of the paraffin at 170 Fahrenheit, and an exposure of some twenty seconds.

Q. How many? Twenty seconds?

A. About twenty seconds. I would say the way to do it is to consider it is twenty seconds.

Q. I haven't asked you anything, Doctor. There is no question pending.

1137 Mr. Gariepy: Just answer his questions.

The Witness: Twenty seconds, I say.

Mr. Schaefer: Q. That is your opinion, 170 degrees and twenty seconds?

A. Yes, and twenty seconds.

Q. From a public health point of view?

A. Yes.

Q. Has that always been your opinion?

A. No.

Q. What has your opinion been in the past?

A. My opinion has been, after we carried on the experiment for a while in the laboratory, my opinion, my first suggestion was 180 degrees Fahrenheit for thirty seconds.

Q. Any other suggestions?

A. Do you mean any other temperature?

Q. Any other suggestions that you made? You said your first suggestion was that.

A. Yes.

Q. Now, what were your others or were there any others?

A. I am of the opinion—

Q. No, we are just talking about what your opinion has been in the past. At one time it was 180 degrees for thirty seconds.

A. Yes.

Q. Has it ever been anything else in the past?

1138 A. Yes.

Q. What was it?

A. I have been changing. Sometimes I did not know. The 180 for thirty at that time I placed at the upper limit. Now how far we could go below and at the same time have a satisfactory container at that time, I did not know.

Q. Doctor, I haven't asked you anything about whether you have a satisfactory container or not. I have asked you from a public health point of view. That is all I am asking you to consider. I am as aware of the problem as you are.

A. Yes.

Q. But I want you to consider this from a public health point of view.

A. Yes.

Q. Can you do that?

A. I am trying to.

Q. All right, do. Now, forget whether the container is satisfactory or not.

A. Well, I think I have answered the question, haven't I?

Q. All right.

A. I feel that 170 degrees for twenty seconds makes a satisfactory container.

Q. Did you ever make that conclusion in any scientific journal?

A. No. I am publishing it—I have a manuscript for a bulletin that is going in.

Q. Did you ever publish any time or temperature other than 185 degrees for thirty seconds?

A. Yes.

The Master: Did you say 185 or 180?

Mr. Schaefer: He said 180. He said 180 was his conclusion. I am asking him now whether he ever said anything other than 185 degrees at thirty seconds.

The Witness: I think I did.

Mr. Schaefer: Q. When?

A. I think I gave a table in that paper.

Q. Here is your conclusion in that paper:

"Paraffining the containers at 185 degrees Fahrenheit for thirty seconds, when the containers are protected as above suggested, will result in a practically sterile container, and a container that is safe to use."

That is what you said, is it not?

A. Yes.

Q. Now, in your other paper—

The Master: What paper was that you just read from.

Mr. Schaefer: That was the Louisville paper and the only one so far to which I have referred.

The Master: Yes.

Mr. Schaefer: Q. Now, in your other paper, which was the paper entitled "Certain Sanitary Aspects of the Use of Paper Milk Containers," which was presented at the 1140 Dairy Manufacturers Conference at the University of Illinois, at Urbana, Illinois, on November 18, 1937, you said this:

"When the paper is so made that it is practically sterile, when it and the containers made from it are handled, packed, transported and stored in such a manner that they will not become contaminated, and when the containers are paraffined at 185 degrees Fahrenheit for thirty seconds or longer, the paper containers will be fully as safe as any container can be made."

Now, at the time you made those statements, Doctor, were you aware of the problems involved in the application of paraffin at high temperatures to paper containers?

A. Not fully.

Q. You were not?

A. No.

Q. You were speaking at this time solely from a public health point of view?

A. I was speaking from experiments that we conducted in—

Q. I am going to go into those experiments, but at that time you were not aware of any mechanical difficulty?

A. I say yes to the question.

Q. You mean, yes, you were not aware?

1141 A. No. We are getting confused.

Q. Were you at that time aware of mechanical difficulties caused by the application of paraffin at high temperatures?

A. Yes. We carried on some tests in the plant, yes.

Q. You were aware of it at that time?

A. Oh, yes.

The Master: Might I ask a question right there, Mr. Schaefer?

Mr. Schaefer: Surely.

The Master: Q. I notice here in this statement that there is a specification not only of 185 degrees Fahrenheit for the paraffin for thirty seconds, but also a number of

other things, before you say that you have a safe container. For instance, you specify that when the paper is so made that it is practically sterile and when it and the containers made from it are handled, packed, transported and stored in such a manner that they will not become contaminated—all those things are prior to the paraffining?

A. Yes.

Q. Now, I thought you said here today that the paraffin itself had the effect of killing the bacteria.

A. It has.

1142 Q. Why specify all these other things in order to have a safe container, then?

A. Setting a high standard.

Mr. Schaefer: Just for esthetic reasons.

Q. Now, let us see, Doctor; you conducted in 1937 certain experiments as to the bactericidal effect of paraffin. In one of those experiments six strips of paper were treated for certain combinations of time and temperature and you used a B-Prodigiosis suspension of two hundred million bacterial per millimeter, and you found that those bacteria were not killed in one minute at 160 degrees Fahrenheit, is that right?

A. If it is there, whatever it says.

Q. I will show it to you.

A. I assume that is the table. I don't recall now just what it was.

Q. You better look at it and see, so we have the record straight.

A. Yes, sure.

Q. That is correct; they were not killed in one minute?

A. Yes, some of them went through on some of the containers.

Q. They all went through in sixty seconds, didn't they?

A. No.

Mr. Gariepy: Some did not.

1143 The Witness: Some did not.

Mr. Schaefer: Q. The majority of them?

A. At 160 I found four.

Q. Out of six?

A. Yes.

Q. That is, the bacteria were not killed in one minute at 160 degrees Fahrenheit?

A. No.

Q. Now, at 170 degrees Fahrenheit the bacteria were not killed in thirty seconds?

A. On those strips, yes, that is correct.

Q. And, of course, obviously they were not killed at 170 degrees Fahrenheit in twenty seconds.

A. That is right.

Q. As a matter of fact, they were not killed at 190, all of them at 190, in twenty seconds, were they?

A. That is the table, whatever is in the table. That is right.

Q. That is, they were not?

A. Yes.

Q. You are aware of the requirements of the United States Public Health Service, with respect to the temperature of paraffin and the time?

A. Yes. You mean for paraffining?

Q. Yes.

A. I didn't know that. It has not been published yet.

Q. Hasn't it?

1144 A. Unless something came up very recently.

The Master: You answered "yes" here to something. Do you want to change it?

The Witness: I thought you referred to the use of temperature in general, as expressed by the United States Public Health Service.

Mr. Schaefer: Q. No, I mean temperature and time with respect to the application of paraffin.

A. No.

Q. You don't know anything about their suggestions? Or let me put it this way: You don't know whether or not they have made any?

A. Well, I heard they are preparing something now.

Q. Do you know whether or not they have published anything?

A. As far as I know, it has not been published.

Q. Yes.

A. As far as I know.

Q. Yes.

A. By the United States Public Health Service, referring to the standard milk ordinance.

Q. While we are talking about these articles, Doctor, you read another paper at the Dairy Manufacturers Conference at the University of Illinois, at Urbana, Illinois, in November of 1938, relatively recent, is that correct?

1145 A. A year ago.

Q. Yes.

A. Probably. I think so.

Q. How long ago it was is a matter of computation.

A. That is right.

Q. You began that article with this paragraph:

"Are paper milk containers sanitary? This question is the same type as the one asked of a married man, 'Have you ceased beating your wife? Answer yes or no.' If the question of this paper should read 'Can paper milk containers be made so that they are sanitary,' then I can answer 'Yes' without any hesitation."

Did you make that statement, Doctor?

A. If it is there, I made it.

Q. (Handing document to the witness.) The first paragraph.

A. Yes.

Q. You did make that statement?

A. Yes.

Q. That is, at that time, as of November, 1938, you were unable to answer the question "Are paper milk containers sanitary?", is that right?

A. The answer must be qualified from saying yes or no, as I pointed out.

Q. That is, at that time you were not able to answer that question?

1146 Mr. Gariepy: I object. He has already answered that.

The Witness: I—

Mr. Gariepy: Just a minute. I have an objection, Doctor.

The Master: Overruled. He may answer. Go ahead.

The Witness: A. We were able to make sanitary containers at that time.

Mr. Schaefer: Q. But at that time you were not able to answer the question "Are paper milk containers sanitary?"

A. I thought I did.

The Master: Let us put it this way:

Q. Did you at that time mean to say that not all milk containers were sanitary? Is that what you mean?

A. I meant to say—

Mr. Schaefer: Paper milk containers, Master.

The Master: What?

Mr. Schaefer: Paper milk containers are all we are talking about here.

The Master: That is what I am talking about.

Mr. Gariepy: Answer the question of the Master.

The Witness: A. Yes. My opinion was that in the paper mill and carton company there must be certain things and when they do them you have sanitary conditions.

The Master: Q. Did you have in mind they had not done them at the time you made that talk?

A. I said as far as the containers we used at that time were concerned, I considered them sanitary.

Mr. Schaefer: Q. I asked you what suggestions you made at the Detroit mill, Doctor, and you answered that you suggested that the water be chlorinated. What other suggestions did you make?

A. As far as I could see, there were not many other suggestions that we made.

Q. You did not make any others?

A. I did not think it was exactly—

Mr. Gariepy: Doctor, just answer his question. Did you make any other suggestions, yes or no.

The Witness: A. As far as I know, no.

Mr. Gariepy: All right.

Mr. Schaefer: Q. What suggestions did you make at the Regal Paper Mill, in New Jersey?

A. I didn't make any there.

Q. You did not?

A. No.

Q. I don't know whether I understood you correctly or not this morning, Doctor. I thought you said that whether or not a person was serving you food with dirty hands was a matter of esthetics. Was that correct?

A. Fundamentally, that is correct.

Q. No more significance than that?

A. No, fundamentally not. And only to this extent: We figure that if you are dirty, you are apt to have more bacteria and perhaps there may be a little more chance for harmful bacteria to be present.

Q. Did you ever hear of typhoid carriers?

A. Yes.

Q. You know they present a considerable problem, don't you, from a public health point of view?

A. Yes.

Q. We run into them in restaurants all the time.

A. But it is clean hands that may do it too.

Q. Clean hands that may do what?

A. That may also do it.

Q. Also do what?

A. Contaminate food, carry typhoid germs.

The Master: What will do it?

The Witness: Clean hands.

The Master: Clean hands?

The Witness: Yes. In other words, we have two types of cleanliness in this problem. One is esthetic and one is sanitary.

1149 Mr. Schaefer: Q. The matter of washing hands is esthetic?

A. It is both.

Q. Did you ever hear of amebic dysentery being transmitted by manual contact?

A. Yes, absolutely.

Q. Then the matter of cleanliness of handlers of food is in your opinion now, as a professor of bacteriology at the University of Illinois, a matter of esthetics?

Mr. Gariepy: I object. He just answered it. He said it is both.

The Master: Let him answer.

The Witness: A. If I may elaborate on it, it is both.

Mr. Schaefer: Q. Then it is not simply a matter of esthetics?

A. This visible dirt is fundamentally esthetics. The dangerous germs on the hands and anywhere else are not visible.

Q. On your direct examination, in Plaintiff's Exhibit No. 46, you presented the result of what you termed a study on the self-purification of paper. You testified that you used two-by-four-and-a-half-inch boards in that test.

A. Correct.

Q. How thick was that board?

A. That was .017 of an inch.

1150 Q. Commonly referred to as 17 point board?

A. Yes.

Q. Now, that strip of paper which you used had more exposed edges than you would find in a paper blank for a milk container, in proportion to its area, hadn't it?

The Master: Will you read that question?

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Witness: A. That is correct, I think.

Mr. Schaefer: Q. Are the edges more or less absorbent than the other surfaces?

A. I am not certain.

Q. You don't know whether calendering the paper has

any effect on absorbency or not? The edges of the paper are not calendered, are they, obviously?

A. This way (indicating)?

Q. That is right.

A. No.

Q. The rest of the paper is?

A. Yes.

Q. Do you know whether that has any effect or do you know whether or not the calendering operation has any effect on the absorbency of the paper?

A. No, I do not.

Q. You don't know whether or not that is one of the reasons why they calender? Just say so, if you don't
1151 know.

A. My understanding of calendering is to make the paper smooth, to press down the points of the pulp that stick out. But I am not a paper-maker, so there may be some other reason.

Q. Now, the bactericidal effect of the rollers in the paper mills to which you have testified is due in a very large degree to the removal of water from the paper, isn't that so?

A. No. It is the heat.

Q. How much water remains in a piece of paper board after it comes off the rollers?

A. I can't tell you. I was told. I never tested it. But it is a matter of three per cent or thereabouts. I would have to guess. I don't recall.

Q. Well, assume that it is three per cent. That leaves you with a paper board of considerable water-attracting power, doesn't it?

A. I don't know on that point.

Q. I see.

A. Whether it would or would not.

Q. In that test you applied bacteria by dropping the paper plaques in a suspension of B-Prodigiosis. Does that truly represent the normal condition in which those bacteria would find their way onto that board?

1152 A. It might. Contaminated water would drop on the paper, maybe.

Q. When contaminated water drops on the board, it is not entirely saturated, is it?

A. No.

Q. Normally, if you were to find board contaminated, say, by handling or by droplets from the nose or mouth—

A. Yes.

Q. (Continuing.) —or by handling, again, with sweat secretions—

A. Yes.

Q. (Continuing.) —or by secretions from the nose or throat—

A. Yes.

Q. (Continuing.) —or saliva or by contamination from urine or feces—

A. Yes.

Q. (Continuing.) —by those conditions the bacteria would be deposited on the paper, together with food substances and protective substances, is that right?

A. Yes, there is some truth in it.

Q. They would be protected against drying to an extent—

A. To some extent.

Q. (Continuing.) —to an extent quite different 1153 than that in the experiment to which you testified?

A. We carried some experiments on that point.

Q. It would be to a different extent?

A. Pardon me?

Q. It would be to a different extent?

Mr. Gariepy: Do you understand the question?

The Witness: A. I would like to give you the rough results of the experiments that we conducted, to bring the point out. I would add, or may I add on this experiment, this was not water suspension on bacteria in all of those studies. I recognize that plaque and that in that study that poor water may act differently. We always put 12 per cent skim milk in the bacteria suspension, so that these plaques were dropped in bacterial suspension of sterile water, to which one per cent of sterile milk was added, so there was a film of milk there.

Mr. Schaefer: Q. One per cent of what? Of sterile milk?

A. Sterile milk, yes.

Q. Now, in that test you reported that you used a bacterial suspension of six hundred million bacteria per millimeter, is that right?

A. Yes.

Q. Now, you performed another test, which you 1154 reported in Plaintiff's Exhibit 51, in which you also inoculated plaques by dropping them in a B-Prodigiosis suspension?

A. Yes.

Q. And in each case you reported the bacterial count of the plaque immediately after you removed it from the suspension?

A. Yes.

Q. Now, in Test No. 46 you used a suspension of 600,000,000 bacteria per millimeter?

Mr. Rall: That is Exhibit 46.

Mr. Schaefer: That is right, Exhibit 46.

Mr. Rall: Yes.

Mr. Schaefer: Q. You used a suspension containing 600,000,000 bacterial per millimeter, and when you tested those plaques immediately after they were removed from the suspension you had uniform counts on each of the ten plaques of 14,000,000 bacteria?

A. Yes.

Q. Now, when you did the same thing with the experiments which are reported as Exhibit 51, you used a much stronger suspension, one of 2,120,000,000 per millimeter?

A. Yes.

1155 Q. And then you counted the colonies on the plates immediately after you removed them from the suspension. You did not get uniformity?

A. No.

Q. You got counts far less than you got in the test reported in Exhibit 46?

A. Yes.

Q. You got counts varying from 50,800 on the lowest of the ten plates to 106,000 on the highest of those ten plates, is that correct?

A. If it is there, that is right.

Mr. Garipey: Look at it.

Mr. Schaefer: Q. I want you to watch this with me, Doctor.

A. Yes. I assume he is reading it correctly.

Q. Stop there and read it so far.

A. Which one?

Q. Right there (indicating).

A. Yes.

Q. You did not have uniformity there?

A. No.

Q. Referring to Plaintiff's Exhibit 51?

A. Yes.

Q. You have no uniformity, no two plaques are alike,

and with a suspension of 2,120,000,000 per millimeter you come out with counts immediately after inoculating 1156 them of 50,000 to 106,000, and on Plaintiff's Exhibit No. 46 you use a suspension much less strong, 600,000,000 bacteria per millimeter, and you come out with complete uniformity of 1,400,000 bacteria per plaque. Can you explain that?

A. Yes.

Q. Do so, if you will.

A. In the first place, counting bacteria by the plate method, when you get such heavily seeded plates you cannot count accurately. All you do fundamentally is estimate. This was an estimation.

The Master: Wait a minute. This is on Exhibit 46?

The Witness: Exhibit 46. We had 14,000 colonies on the plate.

The Master: That was an estimate?

The Witness: That necessarily was an estimate, examined by the use of microscope. The microscope has an area of one thousand and you just try to count the colonies in two or three or four of these fields. I was not interested so much in the exact counts. I was interested in the fact that there are plenty of bacteria on those plaques. So I estimate on the average the plates would have about 14,000 colonies. Why there are more here than here, I cannot tell you.

1157 The Master: More on 46 than on 51?

The Witness: Yes. This suspension appeared to be richer.

Mr. Schaefer: Q. It was richer, was it not?

A. According to the test, yes.

The Master: You are referring now to Exhibit 51?

The Witness: Yes.

Mr. Schaefer: Q. On Exhibit 51 the suspension was richer?

A. Yes.

Q. And the number you got on the plaque immediately after you inoculated them in that suspension was far smaller?

A. It was. I would liked to have seen it different. but these are the results. There were plenty. I didn't worry about the other points.

Q. You then reported the result of the count of those plaques on Plaintiff's Exhibit 46, after they had been ex-

posed to the air for thirty minutes; you again have complete uniformity.

A. Yes.

Q. Is that another estimate?

A. Well, when you get plates down—

Q. Is that another estimate, Doctor?

1158 A. No.

Q. That is the actual fact?

A. That is the actual count, yes.

Q. How do you account for the fact that on Plaintiff's Exhibit 46, after exposure to the air of the ten plaques for thirty minutes, you have complete uniformity, while on Plaintiff's Exhibit 51, after exposure to the air—

A. Wait.

Q. Yes.

A. There was not uniformity, pardon me.

Q. Where wasn't there uniformity?

A. On the individual plates.

The Master: Which one?

The Witness: After exposure for thirty minutes.

Mr. Schaefer: Q. On which one?

The Master: Referring to 46?

The Witness: Again I say those two lines, the first one and second one, are estimates.

The Master: On 46.

Mr. Schaefer: Q. You just said a moment ago it was an actual count.

A. Pardon me. I thought you referred to the lower counts.

Q. No, I meant those.

1159 A. Those two were estimates. I wish I could take you in the laboratory and give you the opportunity to count some of the plates. You would appreciate the point then.

Q. Those two are not actual counts, is that right?

A. No.

Q. They are simply—

A. Close estimates. That is what we do on all laboratory operations, under the standard method.

Q. On Plaintiff's Exhibit 51 you reported counts on those plaques, after they had been allowed to dry for thirty minutes, after being dipped in the suspension. Now, are those counts or estimates?

A. In the first line?

The Master: Thirty minutes.

Mr. Schaefer: No. After thirty minutes.

The Witness: This is the paraffining proposition.

Mr. Gariepy: It is an entirely different test.

Mr. Schaefer: We will see whether it is an entirely different test or not.

The Witness: Yes.

Mr. Schaefer: Q. Do you on this test report the condition of plaques of paper which have been inoculated after they have been allowed to dry for thirty minutes and before they are paraffined?

1160 A. This is actual count.

Q. Do you or do you not, Doctor?

The Master: Read the question to him.

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Witness: A. These are actual counts of the colonies on individual plates.

Mr. Schaefer: Q. Will you answer the question?

Mr. Gariepy: Are they paraffined or unparaffined is what he is trying to get you to answer.

Mr. Schaefer: Read the question to him.

Mr. Gariepy: And listen to the question, Doctor.

(Mr. Schaefer's question was again read as above recorded.)

The Witness: Read the first part of that again.

(The first part of the question was read.)

The Master: The answer is yes or no.

The Witness: These are actual counts.

The Master: Well—

The Witness: I don't see what you mean.

The Master: Off the record.

(Discussion off the record.)

The Witness: A. Yes.

Mr. Gariepy: Show which test it is.

1161 The Witness: Test 4.

Mr. Schaefer: Q. Up to that time—

A. No. 4 on the one test.

Q. Up to that point on the tests reported in Plaintiff's Exhibit 51, the procedure is identical with that employed in the tests reported on Plaintiff's Exhibit 46?

A. Essentially they are identical, with this exception: that in this test—

The Master: No. 46.

The Witness: In 46, exhibit.

A. (Continuing.) —the first count and the second count were estimates, not complete counts of plates.

Mr. Gariepy: Thirty minutes and sixty minutes.

The Master: No.

The Witness: A. After sixty minutes, actual counts. In Exhibit 51 I actually counted the best I could the colonies, with the exception that No. 1, under Test 1, I did not count the whole plate, but counted part of the plate and then calculated. In a way, then, it is an estimate for each plate. The same way here—

The Master: No. 13.

The Witness: Test 3, No. 13.

A. (Continuing.) —again I did not count every colony on the plate. I counted part of the plate and then calculated how many there would be for the whole plate.

1162 The Master: No. 7, the same thing.

The Witness: No. 7 the same thing. This practice is by the standard methods permissible.

Mr. Schaefer: We are going to come to the standard methods too, Doctor.

The Master: Let us have a recess here for a few minutes.

(A short recess was here had, after which the proceedings were resumed as follows:)

1163 Mr. Schaefer: Q. When was the experiment reported in plaintiff's exhibit 46 performed?

A. May I see it?

Q. Surely.

A. This was performed at the University of Illinois in my laboratory, by myself, in August, about August 20 of 1939, this one.

Q. When did you take your vacation this year, Doctor?

A. I did this after vacation.

Q. When did you take your vacation?

A. I took my vacation, partly in July and the first part of August.

Q. You were occupied pretty well over the summer performing these tests, weren't you?

A. To some extent

Q. This was performed in August, you say, of 1939?

A. Yes, 1939. However, I would like to add that we performed many experiments during the last two and a half years, that is I did myself.

Q. The factor on plaintiff's exhibit 46 is 100?

Mr. Gariepy: Did you hear the question, Doctor?

The Witness: I didn't get it.

The Master: Read it.

(Question read by the Reporter.)

A. Yes, 100 dilution.

1164 Mr. Schaefer: Q. Now, you presented report of that experiment in the form of that exhibit in order to show what your results were with respect to this so-called self purification of paper?

A. I didn't get the question.

Mr. Schaefer: Read it.

(Question read by the Reporter.)

The Master: Answer.

A. Yes.

Mr. Schaefer: Q. You used there B prodigeosis as your bacteria?

A. Yes.

Q. You performed another test dealing with the same subject matter which you reported at the Dairy Manufacturers Conference, at the University of Illinois, held in November, 1938, and in your report of that test you said this:

"Organisms like E-coli and B prodigeosis usually die in about 4 days."

A. All right.

Q. Staphylococcus aureus remain alive a few days longer, you said that, did you not?

A. That is correct.

Q. There is considerable difference, isn't there, between the results stated in the paper to which I 1165 just referred, and the results shown in plaintiff's exhibit 46, is there not?

A. Yes. I would say this, however, that we ran many tests on that, individual tests varied, and tests varied considerably with different germs.

Q. Yes, but here you used the same bacteria?

A. The same bacteria.

Q. And you presented this, which showed—

The Master: What is "this," now, exhibit what?

Mr. Schaefer: Plaintiff's exhibit 46, which showed maximum survival of five hours.

A. Yes.

Q. You did not present the results of the other experiments which showed survival after four days?

The Master: He did not present where?

Mr. Schaefer: Present here, in your direct examination.

The Witness: No. But we have the material.

Mr. Schaefer: Yes.

The Witness: I considered this, a germ of somewhat the same sensitivity, it is typhoid.

Q. What is?

A. This germ.

The Master: Q. What?

A. B prodigeosis. Typhoid germs probably have the same degree of sensitiveness towards external agents 1166 like heat and drying. Also—

Mr. Schaefer: There isn't any question pending.

The Master: No question pending, Doctor.

Mr. Schaefer: Q. Doctor, in the experiments reported in plaintiff's exhibits 47 and 47-A, in one set of those experiments you plated the agar directly into the container?

A. Yes.

Q. How much did you pour in?

A. About 25 to 30 m.l. of agar.

Q. How hot was it when it was poured in?

A. 45 degrees C., about 112 to 114 degrees F.

Q. How did you count the colonies after that?

A. After incubation I took a knife and cut off the container almost to the surface of the agar layer.

Q. Wait a minute. You cut off which end of the container, the bottom or the top?

A. Cut off the top, that left the bottom about one-quarter to one-third inch of the side and bottom, and the agar was on the bottom of the container.

Q. Now, did the edge of the container project above the agar at the bottom?

A. I cut it off with a sharp razor, so that almost to the surface of the agar—cut it off completely.

Q. Then what did you do?

1167 A. Then, with a knife—the first thing, I examined it, whether there were any colonies that I could see.

Q. Yes.

A. And, furthermore—

Q. How did you examine it to see whether there were any colonies that you could see?

A. With my eyes and the magnifying glass.

Q. That is before you cut it?

A. After I cut it off.

Q. After you cut it off?

A. Yes.

Q. Yes.

A. That would leave the bottom with about one-third or one-fourth inch height wall, and the paraffin is there.

Q. You don't mean paraffin, you mean agar?

A. Agar.

Q. Why did you proceed further?

A. I wanted to be sure to count all colonies.

Q. That is, you could not count them effectively?

A. The paraffin and container being of light color, I might lose some.

Q. Yes. What further did you do?

A. Then we have a glass, a ruled counting glass, ruled into square centimeters and then with a knife I
1168 inverted the container, what was left, and loosened the agar and dropped it on to the surface of the glass and then I counted it, examined it again for colonies.

Q. Some of the agar remained on the paper?

A. No.

Q. You got all of it off?

A. Yes.

Q. You scraped it?

A. No. It just peeled off.

Q. You say it peeled off?

A. Just loosened and dropped out.

Q. Now, when you got through with that, did you make any bacteriological examination of the paper?

A. No, not in those cases.

Q. Doctor, on plaintiff's exhibit 49, what is the factor?

A. These tests were made by applying the United States Public Health Standard Methods, rinsing.

Q. Doctor, is the factor 100?

A. It is 100.

Q. That's all right. Returning, again, to plaintiff's exhibit 51, the indications "D. N. P." in the left hand column are erroneous, are they not?

A. The letter "P" should be stricken out.

1169 The Master: In what test?

The Witness: In number one.

Mr. Schaefer: Q. In which test?

A. Number 1, number 7 and number 13, and then there is another table there—number one, number 4, number 7, number 10, number 13 and number 16.

Q. "P" should be stricken out?

A. The letter "P" should be stricken out.

The Master: Well, suppose you strike it out, then.

Mr. Gariepy: Just go ahead and do it now, Doctor.
(The witness corrects the exhibit.)

The Witness: Then number 19, number 22 and number 25.

Mr. Schaefer: Q. Now, Doctor, in test number one, reported in plaintiff's exhibit 51, you used a suspension of 2 billion 120 million per m.l.

A. Yes.

Q. In test number two, reported on plaintiff's exhibit 51, you used suspension of 59 million per m.l.

A. Yes.

Q. When you counted the colonies on each of the ten plates, in test number one, immediately after they were dipped in the suspension and removed therefrom, in test number one you got an amount varying from 508 to 1060?

1170 A. Yes.

Q. And in test number two, using a much lighter suspension, you got an amount as to count varying from 438 to 910?

A. Yes.

Q. How do you explain that?

A. I have no explanation. A variation in results, when you seed or inoculate paper like this so heavily.

The Master: Q. Was this done on the same day?

A. Yes.

Q. I thought maybe the wind would blow some of them away.

A. Either the same day or the next day. It was done within two weeks, this test.

Q. Either the same day or the next day?

A. Yes.

Mr. Schaefer: Q. The result of those two tests would indicate that the amount of bacteria on the paper plaques after they are immersed bears little or no relationship to the strength of the bacterial suspension?

A. That appears to be so, with this explanation, that these counts are estimates.

Q. Which counts, Doctor?

A. The counts in test number one.

1171 Mr. Gariepy: Test number one.

The Witness: Test number one.

Mr. Schaefer: Q. You testified a very few moments ago when I was asking you about plaintiff's exhibit 46 that these counts in plaintiff's exhibit 51, which you just referred to, were not estimates but were counts?

A. They were counts to this extent, I tried to explain it, if you remember, Mr. Schaefer, and you stopped me—that it is permissible when you have a large number of colonies on the plate, we count only a small section and then estimate or calculate out. We do not count all colonies in these cases, the colonies were not counted. To come back to your question here, I would expect naturally higher counts in test number one than we received, but I have no explanation. I am giving you just what we got.

Q. Have you any suggestion as to an explanation, Doctor?

A. Perhaps I was not careful enough to make enough dilutions, et cetera, because I was interested primarily to be sure that those plaques were very heavily inoculated.

Q. There is nothing on the exhibit to indicate that those are estimates, is there?

1172 The Master: That those are what?

Mr. Schaefer: There is nothing on the exhibit to indicate that those are estimates.

Mr. Gariepy: I object. The exhibit speaks for itself.

The Master: Overruled.

The Witness: They are counts, estimated counts, based on a limited area of counting.

Mr. Schaefer: Q. Now, what you did in the experiment reported in plaintiff's exhibit 51, in test number one report and number two, you took the saturated plaques as they came from the suspension and immersed them in paraffin at the temperature indicated in the exhibit, for the time indicated?

A. Yes.

Q. You don't know what the moisture content of the paper was at that time?

A. No.

Q. Will you describe the action that occurs when you immerse saturated paper such as that in hot paraffin?

A. To start to answer the question, I had to wait about a minute after I dipped the paper plaque in the bacterial suspension, for about ten seconds, then I took it out and drained it and put it like this (indicating) against
1173 something.

Q. You mean you stood it upright?

A. Pardon me.

Q. You stood it upright?

A. Stood it upright, yes, so as to not have too much surface water, too much of the suspension liquid on the surface.

Q. Yes.

A. Because it would interfere with paraffining, and when the plaque then becomes dull, the water freely drains off and partly is absorbed, then I paraffined it, to take about a minute.

Q. You did it as fast as you could?

A. I waited right there and watched it and the minute the shininess, due to the surface water, disappeared, due to the surface of the paper, I then paraffined it.

Q. What occurs when you immerse paper with that content of water in paraffin, can you describe as a matter of physics what happens?

A. No, I don't know what happens. Of course, I have been watching it to see what goes on, but I don't know exactly what happens, except that the paper receives a coat of paraffin.

Q. As a matter of fact, the paraffin seals in the water, doesn't it?

1174 A. Probably, to some extent.

Q. So that you have the bacteriacidal effect of water under pressure at great heat, is that right?

A. If the heat penetrates through the paper, I would say there would be a little moisture there which would affect the killing of bacteria.

Q. That is the bacteriacidal effect of the immersion of paper in paraffin would not be the same? Let me put it this way—it varies with the moisture content of the paper?

A. I was unable to determine that. That point has been raised at the very beginning of the studies and I did not bring the data we accumulated where we paraffined containers wet, partly dry, and dry, but we could establish no relation between the wet container paraffined reasonably dry and thoroughly dry. I have a copious amount of data on that, using regular containers in the milk plant. I thought I had something to explain the occasional survival of bacteria or disappearance, but our data does not support any conclusion.

Q. How do you explain the occasional survival, Doctor?

A. I would have to theorize.

Q. Will you?

A. Because I don't know. Paraffin is liquid, but, 1175 at the same time, it is supposed to be dry, so that what we actually are doing in paraffining is, so far, as bacteria are concerned, attempting to kill bacteria with dry heat, which is not as efficient as wet heat, and that is a partial explanation. Another explanation as to the appearance of germs is, undoubtedly, some of them are covered, imbedded in paraffin and can not crawl out and you may not get them, but those are just conjectures, not proof.

Q. Of course, if you have wet paper, take the application of dry heat, will you?

A. Dry heat on wet paper?

Q. What you said, Doctor, was that the application of paraffin was an attempt to achieve a bacteriacidal result?

A. Yes.

Q. Was the application of dry heat, to obtain that result?

A. That is true.

Q. And that is less effective than with wet heat?

A. Yes.

Q. When your paper is wet you have wet heat, don't you?

A. Except that with our experiments as regards the paper, paraffining wet paper or dry paper, we could not establish any relation there.

1176 Q. Referring to plaintiff's exhibit 52, Doctor, what is the factor there?

A. The factor is one.

Q. I see.

A. No dilution.

Q. Could you now return for a moment to plaintiff's exhibit 51, you performed other experiments with respect to the bacteriacidal effect of paraffin which you reported in the paper read at the November, 1937 meeting of the Dairy Manufacturers Conference, those results were not in accord with those reported in plaintiff's exhibit 51, were they?

A. Not quite.

Q. As a matter of fact, there are substantial differences, aren't there?

A I don't recall now what the results were reported in that paper.

Q. The results were—

Mr. Gariepy: I object to counsel asking the witness to compare it with something not in evidence. Let him put them in evidence and they will show on their face. Let him offer this report.

The Master: It may be a preliminary question and he may be intending to do it later on.

Mr. Gariepy: He says he can not answer it.

The Master: Read the question.

1177 (Question read by the Reporter.)

The Master: Objection overruled.

Mr. Schaefer: Q. As a matter of fact, the experiment which you reported to that conference showed that paraffin applied at 160 degrees F. for 60 seconds did not have a bacteriacidal effect; is that correct?

A. I will have to see the results. According to this, germicidal action began at 45 seconds.

The Master: Q. 45 seconds for what?

A. Of exposure of the strips of paper to the paraffin. In six tests, four were negative and two were positive.

Mr. Schaefer: Q. At what time and temperature?

A. 160 degrees F. for 45 seconds. At 160 degrees F. two were negative and four were positive.

Q. As a matter of fact, your report to that conference of your experiments showed that bacteria survived exposure to paraffin at 170 degrees F. for 30 seconds, is that correct?

A. Prodigiosis, 30 seconds; two were negative and four were positive.

Q. Now, will you answer the question I asked you?

A. If I may have it.

Mr. Schaefer: Read it.

(Question read by the Reporter.)

1178 A. In that test we got survival.

Q. Is that correct?

A. Well, it is correct. The report, the results of the test, are correct.

Q. All right.

A. I would like to explain. I would like the privilege to explain a little.

Q. In the test reported in plaintiff's exhibit 51, you used a bacterial suspension of 2 billion 120 million m.l. and in the test, result of which you reported to the con-

ference to which I referred, you used what kind of a suspension?

A. 200 million.

Q. Will you explain how, with the relatively light suspension used in the experiments which you reported to that conference, the bacterioidal effect or property was significantly less than the test, the rinse test, 51, which you conducted last August?

A. There are different bacteriological methods and ways of doing it. We used a different method in that experiment.

The Master: Q. In "that experiment", you mean the one reported to the conference?

A. Yes.

Q. Than you did in the experiment recorded in what exhibit?

1179 A. Exhibit 51.

Q. Than in the experiment recorded in plaintiff's exhibit 51?

A. Yes, sir. I would like to elaborate on it a step further.

Mr. Schaefer: Go ahead, Doctor.

The Witness: In the table given at the Dairy Conference we used a strip of paper one-half inch wide and two and one-half inches long, a very small piece; we did it on a very small scale, by using a small amount of paraffin.

Q. You completely immersed the paper in paraffin?

A. Yes, we immersed it, we tried to, yes.

Q. Did you or didn't you immerse it in paraffin?

A. Yes, we did.

Q. Then you used sufficient paraffin to immerse the paper completely in it?

A. What I am trying to bring out is this, that in studies like this you get variable results, you can do the same thing every day and you won't get quite the same results; then if you introduce other factors in there, like a different strip of paper, and so on, you may get different results than when you introduce others.

Q. One thing at a time. I let you complete your 1180 explanation.

A. Yes.

Q. How would the fact that you used different strips of paper make any difference if it is all paper for the manufacture of containers, or wasn't it?

A. Yes, sir.

Q. The effect of paraffining at the same time and same temperature ought to be the same on any strip of paper, shouldn't it, or should it?

A. Well, I don't know. We used a different method, also. We took that strip of paper after we dipped it in the test before the Dairy Conference, dropped the whole piece of paper in the nutrient broth. In the plaintiff's exhibit 51 we somewhat followed the suggestion implied by Dr. Arnold in number six problem which he presented to the Court, by disintegration of the paper. We got these results. Now, the possible danger of contamination, if one germ would survive or would be dropped in handling—

Q. Doctor, I haven't asked you that yet. You just wait.

A. I could—

Q. You just wait.

A. What?

Q. I asked you to explain the difference. You
1181 don't need to go beyond that. You have now stopped explaining the difference, I take it.

A. Pardon me.

Q. Why should you get a different result with a disintegration test than you get from using nutrient broth?

A. I could not tell you, with this explanation, that if one cell, one bacteria cell survived on the strip of paper as we did it in the test which was given before the Dairy Conference, and you dropped the strip of paper in broth you will get growth. When you disintegrate it you may not catch it by plating.

Q. Because you don't plate the entire thing?

A. Because you don't plate the entire thing, that is one explanation.

Q. Then you would say that the test that you reported to the 1937 conference was more accurate in showing the survival of bacteria?

A. I don't know. It would seem so.

Q. It would seem to be more accurate, in your opinion?

A. Because you may skip one bacteria in making the plates.

Q. The test reported to the conference in 1937
1182 would seem to be more accurate than the result presented in plaintiff's exhibit 51, is that right?

A. I would say that it would be the tendency.

Q. Now, in view of the fact that tests of or by an ac-

curate method indicate that B prodigeosis will survive immersion in paraffin at 170 degrees F. for 30 seconds, is it still your opinion that paper containers, from a public health point of view, should be paraffined at 170 degrees F. for 20 seconds?

A. Yes.

Q. Doctor, on what date in July did you visit the plant of the Ogden Dairies?

A. That I don't know.

Q. Early or late?

A. About the middle of July would be my guess.

Q. Were you at that dairy on one occasion or more than one occasion?

A. On one occasion.

Q. Who went with you then?

A. Pardon me.

Q. Who went with you then?

A. Professor Tracy came with me.

Q. Who else?

A. Dr. Brannon also was with me, my co-worker, my colleague.

1183 Q. Where is he?

A. He is in my Division.

Q. At the University of Illinois?

A. Yes.

Q. What did you do when you went there?

A. We went in and asked permission to examine glass bottles.

Q. Of whom did you ask permission?

A. I couldn't give you his name. He is the superintendent of the plant.

Q. He was the superintendent of the plant?

A. I think so.

Q. You can not recall his name?

A. I don't recall his name. I know the foreman's name.

Q. Who else did you talk to there?

A. Who else?

Q. First, what was the substance of your conversation with the superintendent of the dairy?

A. We asked permission to examine the glass bottles.

Q. For what purpose?

A. We have been carrying on—

Q. What did you say to him, and what did he say to you, Doctor?

A. I don't recall. We went in—

1184 Q. As nearly as you can recall, Doctor. This is fairly serious, this means a lot.

Mr. Gariepy: I object to counsel's remarks and ask that they be stricken and the Master caution him against repeating that "it means a lot". That is clearly improper.

The Master: Every question he asks means a lot. Go ahead.

Mr. Schaefer: Q. Give the conversation?

A. I can't give you—

Q. Give the substance?

A. The substance is, we came in—we drove in and brought our equipment with us and asked him to permit us to take bottles and examine them, that we are making a survey of glass bottles, sterility of glass bottles.

Q. For what purpose?

A. That project we have been having on for the last few years..

Q. In connection with that project, did you ever make tests on milk bottles at any other Chicago plant?

A. Yes.

Q. At what plant?

A. Well, I withdrew the other determination, be-
1185 cause—

Mr. Gariepy: Q. The other exhibit, you mean—not determination?

A. A part of the exhibit, yes—the determinations from another plant.

Mr. Schaefer: Q. Did you ever make any tests at Chicago dairies prior to July of 1939 in connection with that project?

Mr. Gariepy: I object to that. I asked him nothing about Chicago dairies, unless you are talking about Chicago dairies in general.

The Master: Overruled.

Mr. Schaefer: Read the question.

(Question read by the Reporter.)

A. We made tests, but not in connection with that project.

Q. This project has been going on for two years, hasn't it?

A. Longer.

Q. It has been going on longer than two years?

A. Yes.

Q. What equipment did you bring with you?

A. Plates, that is petrie dishes, dilution water.

Q. What?

A. Sterile dilution water.

1186 Q. Yes.

A. Pipettes, sterile pipettes and sterile caps, paper caps.

Q. What did the superintendent say to you after you had stated you were making a survey?

A. He said "Go ahead".

Q. And then what did you do?

A. They gave us a table to work on in their small laboratory and we took the bottles as they were traveling from the bottle washer to a bottle filler, put a sterile cap on it and brought it from their milk plant to the laboratory and examined them.

Q. You examined fifty bottles?

A. Yes.

Q. How did you examine them?

A. By using the standard method, rinsing the bottles.

Q. Standard method is enough, I understand.

A. Yes.

Mr. Gariepy: Q. Rinse tests?

A. Rinse test.

Mr. Schaefer: Q. What time of day was that?

A. During the morning.

Q. To whom did you talk in the plant, in addition to the superintendent?

A. To the foreman.

Q. What was his name?

1187 A. I know him—it will come back to me, his name.

Q. Did you talk to any one in addition to the foreman and the superintendent?

A. No.

The Master: Q. Did you just walk in there off of the street, or did you have any previous communication with them?

A. No previous communication.

Q. Who suggested this particular dairy, of all of the dairies in Chicago?

A. Sort of taking sound.

Q. What?

A. Nothing, except the foreman in the dairy is a former student.

Q. A former student?

A. A former student of ours.

Q. Is that the reason you happened to pick this particular dairy?

A. That was one reason. They knew us well.

Q. Were there any other reasons for picking out this dairy?

A. No particular other reason, except it is a fairly good sized dairy and I think they have good equipment in the dairy.

Q. What was the reason for doing it just at that time?

1188 A. Two-fold. We are going all over the State whenever we can to different milk plants to make a bacteriological survey to find the condition, bacteriological condition of glass bottles. Then, the Board of Health in Chicago feels—and rightly so—that they have a very good control so far as inspection is concerned over the milk plants. So, we thought it would be nice to have some bottles from a region, which region is under very high standard inspection.

Q. Did you report the result of your inspection to the Board of Health of Chicago?

A. No.

Mr. Schaefer: Q. Did you report them to the dairy?

A. We promised, and Dr. Brannon—

Q. Doctor, did you report them to the dairy?

A. No.

Mr. Gariepy: Answer the question, Doctor.

A. I don't think so.

Mr. Gariepy: Just answer it, that's all.

A. I am not quite sure, but I don't think so.

Mr. Schaefer: Q. So far as you know, they were not reported to the dairy?

A. No.

Q. That is, so far as you know?

1189 A. No.

Mr. Schaefer: The dairy will hear about that when they read the newspapers.

Mr. Gariepy: I object to that, whether they will or not.

The Master: Go ahead. There is no question pending. The remark may be stricken.

Mr. Gariepy: That is stricken.

The Master: Yes.

Mr. Schaefer: I can not finish the cross-examination today, Master.

(Discussion off the record.)

The Master: We will continue at 9:30 tomorrow morning, unless you wish to start at 9:00 o'clock.

Mr. Schaefer: I would like to look over the direct examination before I conclude.

The Master: 9:30 tomorrow morning.

(Whereupon the further hearing in the above entitled cause was continued to Wednesday, September 20, 1939, at 9:30 o'clock, a. m.)

1190

• • (Caption) • •

Wednesday, September 20, 1939,
9:30 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy,
Mr. Rall.
Mr. Schaefer,
Mr. Horan.

1191 The Master: Are you ready to proceed?
Mr. Schaefer: Yes.

M. J. PRUCHA, a witness called on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Cross-Examination by Mr. Schaefer (Continued).

Q. Doctor, in the paper read by you at the convention of the International Association of Milk Sanitarians, in October of 1937, you made this statement:

"Milk sanitarians should inspect paper mills and check on the pulp. In the first place, the water used for diluting the pulp usually comes from polluted streams or lakes. Some paper mills have proper sanitary control over the water supply, while other mills have not."

Is that condition still true with respect to the control of the water supply of paper mills?

A. Paper mills in general?

Q. Yes.

A. I think so.

Q. Do you believe at the present time that sanitary control of the water supply in a paper mill is of no public health significance?

1192 A. It is of public health significance if it is not controlled.

Q. And by control you mean what?

A. By control I mean the chlorination by the technical department of the paper mill.

Q. What about the statement that you made yesterday, about using water from the Sanitary District Canal?

Mr. Gariepy: I object to that question. There isn't any question to that, as a matter of fact. I suggest the counsel put a proper question to the witness.

The Master: Yes.

Mr. Gariepy: It is argumentative.

The Master: It is not argumentative, but it is indefinite.

Mr. Gariepy: Very indefinite.

The Master: Make your statement or question a little more direct, Mr. Schaefer.

Mr. Schaefer: Q. Do you still adhere to the opinion you expressed yesterday that it would be proper public health practice to permit the manufacture of paper containers for the distribution of milk, using water from the Sanitary District Canal?

Mr. Gariepy: I object. He did not say that yesterday, that they had used that water or anything like it.

The Master: Let him explain what he did say. Go ahead.

1193 The Witness: A. They should not use such water.

Mr. Schaefer: Q. Would it be of any public health significance if they did?

A. It might.

Q. I would like to have you refer to Plaintiff's Exhibits 47 and 47-A. The containers which were examined by you in the tests reported in those exhibits were selected and shipped to you by the Fieldcrest Dairies, were they not?

Mr. Gariepy: Wait a minute. Here is 47, Doctor.

The Witness: Yes.

Mr. Gariepy: And here is 47-A. No. 47 is on top. (Handing documents to the witness.)

The Witness: A. Yes, Mr. Schaefer.

Mr. Schaefer: Q. Now, referring to Plaintiff's Exhibit 56, from what source were the unparaffined containers used in that experiment obtained?

Mr. Gariepy: I am showing you Exhibit 56 that Mr. Schaefer is referring to. (Handing document to the witness.) From what source did those containers come?

The Master: Off the record, please.

(Discussion off the record.)

The Witness: A. These containers came from our supply at the university.

Mr. Schaefer: Q. And where did you secure your supply?

1194 A. From the Pure-Pak, from the Ex-Cell-O Corporation.

Q. Where was the paper made?

A. I do not recall. I presume it was made in the Cherry River Paper Mill.

Q. But you do not know?

A. I am not certain.

Q. In the experiment reported in Plaintiff's Exhibit No. 56 you found that one of the samples tested was free from bacteria; you found that the remaining five samples tested varied in bacterial content from eighteen colonies per gram to thirty-three colonies per gram?

A. Correct.

Q. How do you explain that result, in the light of your self-purification experiment, which is reported in Plaintiff's Exhibit 46?

A. Paper is not always free from bacteria.

Q. But I thought Plaintiff's Exhibit 46 indicated that paper would, by a process which you described as self-purification, rid itself of all bacteria?

A. I did not make that statement, if I may say so.

Q. What is the significance of Plaintiff's Exhibit 46?

A. Exhibit 46 is non-spore-forming bacteria being deposited on the paper and exposed to drying. In Exhibit 56 the bacteria are miscellaneous, including spore-forming organisms.

Q. As well as non-spore-forming?

1195 A. Yes. Most of them were spore-forming.

The Master: Q. What is the difference?

A. The difference is that you cannot destroy spore-forming bacteria by any bactericidal treatment.

Q. That is the spore-forming?

A. Spores, yes.

Q. That is the more harmless of the two?

A. Harmless, yes. This organism in Exhibit 46 was the B-Prodigiosis, I believe, and it is an organism that does not form spores.

Q. That is the more dangerous form of bacteria?

A. It is an organism in the group of which the disease bacteria are classed.

Q. It is the non-spore-forming in association with drying that had a greater bactericidal effect than in the case of the spore-forming?

A. Drying will not kill spores.

Mr. Schaefer: Q. Referring again to Plaintiff's Exhibit 46, from the results there drying did kill spores. After nine hours you found no bacteria of any kind?

A. I didn't say that.

Q. You mean you found no B-Prodigiosis?

A. I counted only B-Prodigiosis colonies.

1196 Q. Then there may or may not have been bacteria present there?

A. There were occasional colonies on the plates, yes, of other bacteria.

Q. Then that exhibit does not show the entire bacteriological condition of the paper?

A. No.

Q. It shows simply—

Mr. Garipey: Let the witness answer, I suggest. Counsel makes a statement. Let the witness answer instead of counsel making statements.

The Master: Off the record, please.

(Discussion off the record.)

The Master: Go ahead.

Mr. Schaefer: Q. It shows simply the inoculating organism which is present after the periods of time indicated in the exhibit, is that correct?

A. Correct.

Q. There were other types of non-spore-forming bacteria present in the paper after the expiration of the periods of time described in that exhibit, were there not?

A. True.

Q. Then the result of the experiment does not indicate that all non-spore-forming bacteria are killed by the mere exposure of paper to the air, is that correct?

1197 A. This Exhibit 46 does not show that, but they do.

The Master: Q. They do what?

A. Non-spore-forming bacteria, when they are left on the paper, will die in time. The length of time varies with the different germs.

Q. But the spore-forming are the more hardy of the two?

A. The spore-forming will stay several years, maybe.

Mr. Schaefer: Q. How do you account for the presence of non-spore-forming bacteria in that paper when you disintegrate, after the times indicated in the exhibit?

A. That has not been solved. Experiments have been followed or performed with the idea of trying to locate them. The disintegration of paper and the examination of bacteria when there are so few bacteria is very difficult. The bacteriological method sort of fails quantitatively. You cannot tell by fifteen or twenty germs. It is affected by the limits of the accuracy of the method. There are no certain spores predominating in the paper in numbers. We find occasionally in the paper, especially, in the container after it is paraffined, two organisms, a variety of micrococcus.

1198 Q. Is that non-spore-forming?

A. That is non-spore-forming, yes, and a yellow organism called sarcina.

Q. Is that also non-spore-forming?

A. That is a non-spore-forming organism, yes.

Q. Then all spore-forming organisms do not die from the mere exposure to the air?

A. If the paper is exposed long enough, yes.

Q. Now, you found some spore-forming bacteria here on Plaintiff's Exhibit 46 after the lengths of time indicated there, didn't you?

A. I don't know. One explanation—

Q. The answer to that question is "yes," is it not?

Mr. Schaefer: Read the question, Mr. Reporter, please.

The Witness: Yes, read the question.

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Witness: Non-spore-forming. May I correct that?

Mr. Schaefer: Q. You are right. Non-spore-forming is what I mean.

A. You find some occasionally on the plates.

Q. You found them here?

A. I don't recall.

Q. On Plaintiff's Exhibit No. 46?

A. I don't recall what organisms there were.
1199 There were so few, I paid no attention to the occasional colonies on the plates.

Q. But they were there?

A. I could not answer as to this particular exhibit.

The Master: Q. Now, you say that there might have been some non-spore-forming or spore-forming organisms?

A. There were a few spore-forming organisms. The plates were not absolutely free from bacterial. There would be something like one colony on a plate, and the next plate would have none.

Q. Of the spore-forming?

A. I thought from the looks they were spore-forming organisms.

Q. Would you say there were any non-spore-forming organisms there?

A. I could not tell, as to this exhibit.

Mr. Schaefer: Q. But as a general rule you have found non-spore-forming bacteria?

A. Occasionally.

Q. And that was long after the paper was manufactured, was it not?

A. Yes.

Q. And they were not killed by the natural drying process, were they?

A. They were present.

Q. In your opinion, does the fact that the paper used in the performance of Plaintiff's Exhibit 46 was saturated with water have any effect upon the result of that experiment?
1200

A. I could not answer that question, in a way.

Q. You don't have any opinion at all on that question?

A. Will you repeat it, please?

(Mr. Schaefer's question was read by the reporter as above recorded.)

The Witness: A. I did not think so.

The Master: Q. Would it have the effect of prolonging the life of the bacteria?

A. It would, if the paper is kept somewhat damp.

Q. We are talking now if the paper is saturated.

A. If the paper is saturated and it dries within a minute, there is no appreciable beneficial effect of the water on the bacteria there.

Q. Did you apply any artificial drying to this paper?

A. No.

Q. It just dried by room temperature?

A. By room temperature. Just put it up like this (demonstrating).

Q. You stood the paper up?

A. Yes.

Q. And let the water flow off?

A. Whatever there was, and gradually it dried.

Mr. Schaefer: Q. Does not the fact that the paper
1201 dried in one minute indicate that it was pretty thirsty
paper?

Mr. Gariepy: Do you understand that, Doctor?

The Witness: I understand it, yes.

A. Why, the paper was dry. I did not test the amount of moisture. The weather would affect the speed of drying. If the paper is kept in a damp place, it will pick up a little moisture. If it is kept in a dry place, the moisture would go out.

Mr. Schaefer: Q. The fact that the paper, this particular paper, dried in one minute, however, indicated that it was pretty thirsty paper, didn't it?

A. Pardon me. I didn't say it dried in one minute.

Q. Oh, I understood you to say that to the Master a minute ago.

A. No.

The Master: Q. What do you mean by that, that it dried in one minute, if you remember what it was?

A. I said this; that within one minute, as the moisture evaporates, it does not have any beneficial effect on bacteria.

Q. Beneficial? Do you mean bactericidal?

A. No, I mean bacteria would grow in it, or something like that.

Q. I see.

A. But I don't think the paper would dry completely in one minute. It would entirely depend on environment.

Mr. Schaefer: Q. As a matter of fact, would not the rapid absorption of the moisture by the paper have a tendency to dry out, to desiccate the bacteria, and thus kill them?

A. If the moisture is absorbed—will you please read the question?

(Mr. Schaefer's last question was read by the reporter as above recorded.)

The Witness: You see, the question is not correct.

Mr. Schaefer: Q. Would it have that tendency?

The Master: What is your answer?

The Witness: A. I don't know what to answer, because the question is not correct, because you imply that paper absorbs the moisture. Read it again.

(Mr. Schaefer's last question was again read as above recorded.)

The Witness: A. Absorption? You see, I don't know how to answer that question.

Mr. Schaefer: Q. You mean, you don't know whether the paper absorbs the moisture or not?

A. You mean from the air, moisture from the air?

Q. No, I mean the moisture with which you 1203 saturated the paper.

A. Now, in view of your explanation—please read that question again.

(The question referred to was read as follows: "As a matter of fact, would not the rapid absorption of the moisture by the paper have a tendency to dry out, to desiccate the bacteria, and thus kill them?")

The Witness: A. No.

Mr. Schaefer: Q. Why not, Doctor?

A. It would be just the reverse, if anything.

Q. Will you explain that?

A. If the moisture is absorbed by the paper rapidly, that has nothing to do with any desiccation of the bacteria in the paper.

Q. You were testing for surface bacteria, however, weren't you?

A. Both.

Q. I thought you told us a moment ago, Doctor, that you only reported the surface bacteria with which you inoculated the paper, that that exhibit shows no other bacteria.

A. The method of inoculation of this paper was by dipping it in liquid.

Q. Yes.

A. And that immediately this paper tends to absorb 1204 some water inside it.

Q. Yes.

A. That is right.

Q. Now, did you measure the degree of absorption?

A. I weighed a number of samples.

Q. When did you weigh them?

A. As soon as I took them out.

Q. Did you weigh them first?

A. Of course, I weighed them first, and then I weighed them again as soon as the water dripped off, in a matter of, say, ten seconds.

Q. And what did the results show?

A. It varies somewhat.

Q. In general?

A. From one-twentieth to as much as one-tenth of a millimeter of moisture absorbed by a piece of paper two inches by four and a half, size 17.

Q. Seventeen point paper?

A. Yes.

Q. Did you weigh the strips of paper before and after?

A. Yes.

Q. Now, in terms of weight, how much absorption was there? You can state it in percentages, if you wish.

A. Yes, in terms of weight, I should say from one-tenth to one-twentieth of a gram. It varied, for 1205 some reason.

Q. You mean, there was an increase from one-tenth to one-twentieth of a gram?

A. Yes, something of an increase.

Q. Now, how much did your plaques, two inches by four and a half inches, weigh before you immersed them in the solution?

A. About two grams.

Q. Two grams?

A. Yes, about two grams.

Q. Are you able to account for the fact that all non-spore-forming bacteria are not killed by this so-called self-purification process?

A. I didn't say they are not killed by the purification process.

Q. But you find them after the paper has been exposed to the air, is that correct?

A. Occasionally you find a colony on the plate, yes.

Q. Indicating, of course, that they have not been killed?

A. Not necessarily.

Q. Indicating what?

A. One bacteriologist feels that there contamination, in

disintegration of the paper, in making the plates, that once in a while these germs will slip in from the operator's hands or from a cold or from the air. That is one 1206 bacteriologist's explanation.

Q. That would be poor technique, wouldn't it?

A. No, not necessarily.

Q. What other explanations are there?

A. In the handling of the paper in the course of disintegration, we have to expose the paper to the air; we have to cut it, and we have to handle it.

Q. That is the explanation you just gave, is it not, Doctor?

A. No, that is a slight variation of it.

Q. What other explanations are there?

A. I don't know.

Q. The only explanation that you know of is that bacteria—

Mr. Gariepy: I object. The witness has told the explanations and he said he didn't have any more.

The Master: Overruled.

Mr. Schaefer: Q. The only explanation that you know of, Doctor, is that those bacteria enter the paper during the process of disintegration, isn't that correct?

A. That is one possible explanation.

Q. That is the only one of which you are aware?

Mr. Gariepy: I object, for the same reason. The witness has already told him in detail.

1207 The Master: I will let him answer. Go ahead.

The Witness: A. There might be some other ways of the germ getting on, that particular bacteria.

Mr. Schaefer: Q. I wish you would refer to Exhibit 54, Plaintiff's Exhibit 54, Doctor. That exhibit reports the results of certain rinse tests conducted by you to ascertain the bacteriological condition of paper milk containers before they were paraffined.

A. Yes.

Q. And that exhibits shows that of 128 containers which you examined, 24 had a bacterial content, as disclosed by the rinse tests, which ranged from 350 colonies per container to 1800 colonies per container, doesn't it?

A. You are calculating it out?

Q. Yes.

The Master: You have looked at them, Mr. Schaefer?

Mr. Schaefer: Yes.

The Master: You are willing to take his word that the exhibit shows that, Doctor?

The Witness: Yes.

Mr. Schaefer: Q. That column shows it there.

A. I see it, yes.

Q. Check those and see if it is correct.

1208 A. I see it, yes.

Q. Check the first two and see if the range is correct, the first and the last.

A. Nine and eight are seventeen, divided by two. That is correct.

Q. The factor which you apply to that table is 100?

A. 100, yes.

Q. How do you reconcile the counts shown there in rinse tests made of paraffined containers with the results of your self-purification experiments reported in Plaintiff's Exhibit 46?

A. In the first place, 25 shows no bacteria at all.

Q. Doctor, will you answer the question, please?

A. Yes, I am trying to.

The Master: By 25 you mean No. 25, don't you?

The Witness: In order. How do I account for the presence of the bacteria?

Mr. Schaefer: Q. That is right. How do you reconcile the results in Plaintiff's Exhibit 54 with those shown in Plaintiff's Exhibit 46?

A. The containers were put in the machine, sealed, exposed to the machine, and then were taken out just before they were to drop into the paraffining well.

The Master: What experiment are you talking about?

1209 The Witness: This (indicating).

The Master: That is No. 54?

The Witness: Exhibit No. 54.

Mr. Schaefer: Q. Now, the containers in Exhibit No. —that is right. I withdraw that.

A. No. 54. They were passed through the machine, the bottom formed and sealed, and then taken out just as they were ready to dip in the paraffining well, so that they were exposed to the air, to the machine, to the parts of the machine, and they were sealed with adhesive.

Q. You mean this pick-up, this increase in amount of bacteria, is due to the machine, is that correct?

A. It is due to the general—not only to the machine, but the general contamination of handling the containers.

Q. To the machine and to the conduct of dairy operations at that time and place?

A. We must remember—

Q. Isn't that correct?

A. Yes.

Q. All right.

A. Not wholly.

Q. All right. Make it correct.

A. I don't know where they came from, but I am guessing that part of the contamination came from those sources. There were some bacteria on the paper containers before they were put in the machine, also.

1210 Q. How do you account for that, in the light of your self-purification results?

A. I have to always come back to this point, that paper always, as a rule, has bacteria in it, the predominating type being the spores, so that the paper is sterile from the definition of commercial operations. It is not sterile from a bacteriological standpoint, always.

The Master: Q. Does your Exhibit 46 about self-purification include the spore-forming organisms?

A. No. 46 deals only with non-spore-forming organisms.

Q. And how about Exhibit No. 54?

A. It includes the whole population of bacteria, different kinds.

Q. Both spore-forming and non-spore-forming?

A. We did not examine in this study which were non-spore formers and which were spore formers, aside from examining the plates visually.

Mr. Schaefer: Q. And by that visual examination you say there were non-spore-forming bacteria present?

A. My recollection is that the predominating bacteria in the paper are spore-forming bacteria.

Q. Yes. Now, will you answer that question, Doctor?

The Master: Read the question.

1211 (Mr. Schaefer's question was read by the reporter as above recorded.)

The Master: In what exhibit are you talking about?

The Witness: No. 54.

Mr. Schaefer: Exhibit 54.

The Witness: A. I do not recall.

Mr. Schaefer: Q. If there were not, it would have been unusual, is that correct?

A. There probably were some.

Q. Now, will you refer to Plaintiff's Exhibit 49, please?

A. Yes.

Q. By what factor should the results indicated in the two experiments depicted on that exhibit be multiplied to show the number of colonies per container?

A. As far as I know, by 100.

Q. Will you explain that, Doctor?

A. We pour 100 millimeters of sterile water in the container, shake it, and make two plates, one millimeter in each plate, and pour nutritin-agar in them and incubate the plates, and then count the colonies that develop on the plates. Now, suppose you have one colony on each plate. That means that each cubic centimeter had one colony, and we put in a hundred cc.

1212 Q. Now, in your first experiment reported in Plaintiff's Exhibit 49 you made rinse tests of 132 paraffined Pure-Pak containers, didn't you?

A. One hundred and thirty-two, yes.

Q. And you found bacterial contents ranging from 0 to 1150 per container, is that correct?

A. Yes.

Q. And in the second experiment reported on Plaintiff's Exhibit 49 you made rinse tests of 395 paraffined Pure-Pak containers?

A. Yes.

Q. And you found bacterial counts ranging from 0 to 2050 colonies per container, is that correct?

A. Zero to—that is correct.

The Master: Q. How do you get the 2050?

A. Here (indicating). Twenty colonies by twenty-one. Add it and divide by two. The factor is 100.

Mr. Schaefer: Q. How do you reconcile those counts on the paraffined containers with the results of the self-purification experiment on Plaintiff's Exhibit 46?

A. These were paraffined containers in Table 9.

Q. Yes.

The Master: Q. They were also paraffined containers in Table 8, were they not?

1213 A. Yes. How do I account for the presence of bacteria?

Mr. Schaefer: Q. Yes, in view of the experiment reported in Plaintiff's Exhibit 46.

The Master: Q. In other words, would the self-purification apply both to paraffined and unparaffined containers?

A. These containers were paraffined and examined within a half hour.

Mr. Schaefer: Q. Yes.

A. And this was the bacteriological condition of the containers, corresponding to the bacteriological condition of glass bottles ready to be filled with milk.

The Master: Q. Where did the bacteria come from?

A. They came from this fact, that bacteria are distributed in nature everywhere, and no matter what you do—you put a dish here and it won't be long before some of them drop in. You can't do anything about it. In other words, there is a continual contamination of everything.

Q. The bacteria in this Exhibit 49 were on the paraffin, weren't they?

A. They were inside.

Q. Inside the container after it was paraffined?

A. Yes. The container is paraffined, traveling 1214 through the—

Mr. Schaefer: Q. I think we understand the operation, Doctor, but where did the bacteria come from?

A. I feel that is the explanation. They drop in here and there.

The Master: Q. Why don't they drop here, on Exhibit 46?

A. This was an entirely different matter here. Some of them may have dropped on the piece of paper, yes.

Q. How do you distinguish between the two exhibits? That is what we are getting at. On Exhibit 46 you show what you call a self-purification of paper.

A. Yes.

Q. And the absence of bacteria at various periods.

A. Due to drying.

Q. Due to drying?

A. Yes.

Q. Now, what Mr. Schaefer wants to know is, if the drying would not have the same effect on the presence of bacteria, whether the container was paraffined or unparaffined?

A. I feel the drying played no part in Exhibit 49.

Q. That is, Exhibit 46 deliberately tried to find the effect of drying, and for that reason you had various intervals from thirty minutes to twenty-four hours?

A. Before I examined—

1215 Q. Before you examined them?

A. Yes.

Q. While in the case of Exhibit 49, you made the examination—

A. Within a reasonable time.

Q. Well, within a half hour, would you say?

A. Something like that, yes.

Q. After the container had been paraffined?

A. Yes.

Mr. Schaefer: Q. Now, refer again to Plaintiff's Exhibit 54. I am sorry to bring you back to that, Doctor. That exhibit reports the results of experiments conducted to show the bacterial condition of paper milk containers before they are paraffined, doesn't it?

A. Correct.

Q. Now, in your address at the Dairy Manufacturers Conference, at the University of Illinois, in November of 1938,—

Mr. Gariepy: 1937, is it not?

Mr. Schaefer: There are two of them, 1938.

Mr. Gariepy: Excuse me.

Mr. Schaefer: Q. (Continuing.) —you also reported the results of experiments conducted to show the number of bacteria contained in the paper container board, did you not?

1216 A. Correct. Well, I have to see it first.

Q. Here. (Handing document to the witness.)

A. Yes.

Mr. Schaefer: Mr. Reporter, mark this Defendant's Exhibit 7, please, for identification.

(The document referred to, being a copy of address of Dr. Prucha to Dairy Manufacturers Conference at the University of Illinois, November, 1938, was thereupon marked Defendant's Exhibit 7 for identification.)

Mr. Schaefer: Q. Will you compare that with the table shown in the report of the proceedings of the conference and tell me whether or not it is correct?

A. Apparently it is correct.

Q. Will you look at it more closely and see whether or not it is correct?

A. I am satisfied.

Q. Now, in the experiment reported in Defendant's Exhibit 7, how many samples of paper did you examine?

A. Seventy.

Q. And of the seventy samples you examined, how many showed no bacterial content?

A. Four.

Q. And how many of the samples showed a content in excess of 500 per gram of paper?

A. Twenty-three.

1217 Q. And how many of the seventy showed a bacterial content in excess of 100 per gram?

A. Forty-two.

Q. Are you aware that the standards recently fixed by the United States Public Health Service require paper of a bacterial content of less than 100 per gram?

A. Yes.

Q. The results of the experiment reported in Defendant's Exhibit 7, with respect to the number of bacteria in the paper used in manufacturing the Pure-Pak containers, are distinctly higher than the results of the experiment pertaining to the same matter reported in Plaintiff's Exhibit 54, are they not?

A. They are, if you take the first two columns.

Q. They are on any basis, are they not, Doctor?

A. No, sir.

Q. All right. On what basis are they not?

A. The Pure-Pak containers are made from Cherry River paper and the Cherry River samples are about the last ten or fifteen, I think, in this third column.

The Master: Of Defendant's Exhibit 7?

The Witness: Yes.

Mr. Schaefer: Q. From what sources did you obtain the paper used in the experiments reported in Defendant's Exhibit 7?

A. They came from all sorts of sources and I could not give you exact information, unless I go back into my notes.

Q. All the paper used in that experiment was paper manufactured for use in paper milk containers, was it not?

A. It was submitted as a potential source. It is an experiment. If it was too high, they would not use it. In other words, this was an experiment, a part of an experiment. The paper mill tried to make paper with a low bacterial count, and if it was higher, then what shall we do? Try to correct it.

Q. This experiment showed, didn't it, the bacteriologi-

cal condition of the paper board designed for use in paper milk containers, submitted to you from five different paper mills, is that true?

A. Essentially it is correct. I am not quite sure. A few samples may have been some other paper, even. I was interested in the bacteriology of paper generally. This was done almost two years ago.

Q. Let us see whether or not that is a fact, Doctor. You reported that to the Dairy Manufacturers Conference in a paper, the title of which is "Are Paper Milk 1219 Containers Sanitary?"

A. Yes.

Q. For what purpose were you examining the bacterial content of paper other than in paper milk containers and reporting the results of that test in such a paper?

A. I would say that practically all of the samples came from paper which was made with the idea that it was to be used for milk.

Q. Didn't you check to ascertain whether or not it was designed to be used for paper milk containers?

A. Yes. I have it in the notes. I could not say one hundred per cent. I will admit it was made for the purpose of making paper for milk containers, submitted to us to determine whether it was good.

Q. Where did it come from?

A. I couldn't tell you where the individual samples came from.

Q. Where did all of the samples come from?

A. They came from six paper mills.

Q. Now, will you name them?

A. Detroit Paper Mill, Cherry River—

Q. Just a minute. The Detroit Paper Mill was manufacturing paper board for use in paper milk containers, was it not?

1220 A. They did.

Q. All right, go ahead.

The Master: The next one you gave was Cherry River.

The Witness: Cherry River.

Mr. Schaefer: Q. And they also were manufacturing paper for use in paper milk containers?

A. Yes.

Q. Go ahead.

A. Regal.

Q. And they also were manufacturing paper for use in paper milk containers?

A. Two plants.

Q. Is that right?

A. Yes. Champion.

Q. And Champion also was manufacturing paper for use in paper milk containers?

A. In general. Not for Pure-Pak.

Q. For use in paper milk containers?

A. Correct.

Q. All right. Who else?

A. Two more. I believe a mill by the name of Lewis Mill.

Q. And they also were manufacturing paper board for use in paper milk containers?

A. Yes.

The Master: What was that name again?

The Witness: Lewis.

Mr. Schaefer: Q. Do you remember the full name?

A. The samples came from Lewis, Champion, Regal.

1221 Q. Then all of those samples were samples of milk container board, weren't they?

A. I think so.

Q. You were not testing shoe box board, to report on the bacteriological content of paper milk containers, were you?

Mr. Gariepy: I object to that.

The Master: Overruled.

Mr. Gariepy: There is a limit to this, Master.

The Master: He is going along all right. Objection overruled. Go ahead.

The Witness: A. Mr. Schaefer, I would have to look in my notes to be absolutely certain. I said I admit that they were.

Mr. Schaefer: Q. Do you report the bacterial content of shoe box containers to milk sanitarians?

Mr. Gariepy: I object to that. It is getting into the realm of the ridiculous now. Let us not make a farce of the proceedings here. We have been all over that shoe box board stuff before.

The Master: I have overruled the objection. Go ahead.

Mr. Schaefer: Will you read the question, Mr. Reporter?

(Mr. Schaefer's last question was read by the reporter as above recorded.)

1222 The Witness: A. To my knowledge, I did not.

Mr. Schaefer: Q. Now, what is your explanation for the fact that those tests conducted and reported before the institution of this litigation, those tests reported in Defendant's Exhibit 7, are appreciably higher in bacterial content than the results reported in Plaintiff's Exhibit 54?

A. Those two exhibits do not compare.

Q. They do not compare because the bacterial content—

Mr. Gariepy: I object to counsel stating the answer. He asked the witness a question and the witness said they do not compare. Let him answer why they do not compare. I object to this, Master. There is a limit to this thing. He is constantly telling the witness the answer. I object.

The Master: Overruled. Read the question.

Mr. Schaefer: I will withdraw that.

Q. For one reason they do not compare because the bacterial condition of the paper is slightly different, is that correct?

A. That is partly so.

Q. That is one reason?

A. That is one reason.

Q. What is the other reason?

A. The other reason is that the two tests were entirely different. In Exhibit 54, the test was to rinse out, by rinse tests, formed containers to determine the bacteria inside them. Exhibit 7 was a disintegration experiment of the paper, of the samples submitted to us.

Q. Now, will the difference between the result of a rinse test and the result of a disintegration test ordinarily be as striking as that shown on those two exhibits?

A. No. I would say that if you use paper No. 1 for the container, you will have more bacteria in the container.

The Master: What is that?

The Witness: Sample No. 1.

The Master: On what exhibit?

The Witness: Exhibit 7.

The Master: Defendant's Exhibit 7.

The Witness: But these papers were not necessarily used for paper containers, as I already explained. They were submitted as samples. That is a different thing. If the paper mill makes paper and makes samples, would it be acceptable for milk? We have said no. And any

industry that is interested in containers would not buy paper like that for containers.

Mr. Schaefer: Q. How do you know that, Doctor?

1224 A. It is self-protection of the industry.

Q. What do you know about the industry?

A. Well, I know pretty well what industries do.

Q. If they could buy that paper cheaper, you don't know whether they would buy it or not, do you?

A. I have no proof, except I know what the industry wants to do.

Q. You know this: You know that that paper is not fit for use in paper milk containers, don't you?

A. When it is as high as this?

Q. Indicating your results shown on Defendant's Exhibit 7.

Mr. Rall: Column 1.

The Witness: A. From a sanitary standpoint, the paper used for containers, from the samples in Column 1, my opinion is that it would, when formed into containers, meet in most cases the standards for the bacteriological condition of a container for milk.

Mr. Schaefer: Q. Including the standard fixed by the United States Public Health Service, that on a disintegration test the paper shall show a bacterial content of less than 100 per gram?

A. It would not fit then, because it would have to many bacteria.

1225 Q. With what standard would it comply?

A. It would comply with the standard of milk bottles, washed, sterilized, ready to receive milk, glass bottles.

Q. By that you mean the standard test for the bacteriological condition of glass bottles?

A. Yes, sir.

Q. Now, would it meet any standard that you know of that has been prescribed by anyone for the bacteriological condition of paper containers?

A. To my knowledge, there has not been any standard set, except this one in the recent meeting of the United States Public Health Service.

Q. Then that paper will not comply with the only existing standard, is that correct?

A. Those samples would not.

Mr. Rall: Contained in Column 1.

The Master: Indicating those in Column 1.

The Witness: Those indicated, about half of them, about forty-three of them.

Mr. Schaefer: Q. Forty-three out of how many?

A. Out of seventy.

The Master: Q. As I understand you to say, on Exhibit No. 54 all you did there was to conduct a rinse test?

A. Correct.

1226 Q. Which merely showed the bacteria on the inner surface of the container?

A. Correct.

Q. While in Defendant's Exhibit 7 you conducted a disintegration test?

A. Correct. Determined the number of bacteria enmeshed in the paper, as well as on the surface.

Q. Now, Exhibit 54 would not show any bacteria in the paper?

A. There would be some.

Q. That is, those that might be near the surface?

A. Yes.

Q. It would not show the bacteria down deep?

A. No, but I would anticipate that Sample 1 in Exhibit 7, if made into paper containers, would have higher counts.

Q. On the rinse tests?

A. On the rinse tests, yes, sir.

Mr. Schaefer: Q. In view of the experiments, the results of which are reported in Exhibits which show the results of your experiments, did you make any effort to determine the bacterial content of any Pure-Pak paper container, other than quart containers?

A. No.

Q. As a matter of fact, it is true, is it not, that it is much more difficult to efficiently paraffin pint and
1227 a half-pint containers than it is to paraffin quart containers?

A. I am unable to answer that.

Q. You have never discovered that in any of your experiments, Doctor?

A. No. I have examined them and to my knowledge I did not notice anything particular as between quarts and pints.

Q. In your opinion, Doctor, is it sound practice, from a public health point of view, to add antiseptic disinfectants to food, to prevent its decomposition?

A. It is, if it is permitted by the pure food laws.

Q. Do the pure food laws permit it?

A. Yes.

Q. Is it possible for the adhesive applied on the side walls and the bottom of the Pure-Pak container to come in contact with the milk in that container?

A. I think it is possible.

Q. Do you know whether germicides are used in that adhesive?

A. Sodium benzoate.

Q. Is used?

A. Yes.

Q. Are any other germicides used?

A. I was informed by the company that benzoate acid or sodium benzoate is used. I did not determine it myself.

1228 Q. Are any other germicides ever used in the making of adhesives for paper milk containers?

A. Not that I know of.

Q. On direct examination you stated that there would be a tendency for the filling machine used in filling glass bottles to contribute more bacteria to the milk than the machine used for filling Pure-Pak containers. Why is that so?

A. Because the filling machine for glass bottles has a great many more parts, rubber parts, springs in each belt, and, on general principles, the more complicated equipment is the more bacteria it will add.

Q. You have never conducted any experiments to indicate that, have you, Doctor?

A. Yes. We have examined into that in many, many cases, going into milk plants, examining the design of the whole system, including pumps, pipes, coolers, and so on.

Q. If the filling equipment is properly handled from a sanitary point of view in a glass bottle filling plant, will there be any tendency for that equipment to contribute a larger number of bacteria to the milk than a paper milk container?

A. There will.

1229 Q. As a matter of fact, regular milk bottle filling equipment is used also for some types of paper containers, is it not?

A. Yes, one type of paper containers.

Q. Do all the rest of them have special filling equipment?

A. Correct.

Q. And all the rest of that special filling equipment is more or less simple than in the case of the filling equipment for glass bottles?

A. I am referring to the Pure-Pak machine.

Q. Yes, but I am referring to all the others.

A. The complexity varies with the different ones.

Q. Will you compare the complexity of each one with the complexity of the filling equipment for glass bottles?

A. I don't like to refer by name to other makes and say that they are more complicated at this point.

Q. Well, you might as well, Doctor. There is no point in being bashful now.

A. Well, I have got in trouble already by referring to names. Not that there is anything to hide.

1230 (Question read by the Reporter.)

Mr. Gariepy: Do you understand the question?

The Witness: Yes, I just want a minute. I am just debating what to say.

The Master: Q. How many are there to compare?

A. Well, probably five.

Q. Go ahead and compare them.

A. Some of them I am not acquainted with fully.

Q. Well, that makes it less than five.

A. The Seal-Rite Container is filled on the regular glass bottle filler, with slight modification.

Q. Do those modifications make it more or less complicated?

A. Not more.

Q. That one is comparable to the ordinary glass bottle filler?

A. Pardon me.

Q. That one, the Seal-Rite is comparable to the glass bottle filling equipment?

A. Yes. The American Can machine has more parts, not the whole, but on the regular bottle equipment, bottling equipment, we have four or six or eight valves, not many more as a rule. The American Can Machine has 13 on the machine—I think 15 on the machine we used, so that there is more surface.

Q. And, therefore, a greater tendency to add more
1231 bacteria?

A. There would be a greater tendency to add a few more bacteria.

Q. Yes.

A. By the very nature of things.

Q. Yes. Any other containers?

A. I am not acquainted with the other containers.

Q. That is the only one?

A. The Seal-Cone and Reid and some others, I am not acquainted with them.

Q. I understood you to say on your direct examination, Doctor, that you applied the standard method of analysis to determine the sanitary aspect of the Pure-Pak Container?

A. Correct.

Q. Will you explain how you did that?

A. Repeat, that please.

The Master: Read the question.

(Question read by the Reporter.)

A. We used a standard method, rinse method.

Mr. Schaefer: Q. Is the rinse test a method of milk analysis?

A. That is a test of empty containers.

Q. Is it a method of milk analysis, at all?

A. No.

1232 Q. Then, you were referring to the rinse test when you said you used the standard method of milk analysis?

A. Did I make that statement?

Q. You just made it a second ago, Doctor.

Mr. Gariepy: I object to counsel arguing with the witness. You don't have to point out anything to him.

The Witness: May I explain?

Mr. Gariepy: Yes, explain.

The Witness: If I may explain, the standard methods of milk analysis is a publication giving various methods for milk containers and what-not, and I referred to the standard milk analysis in general in the book where the methods are given, and in the book a method for examination of empty sterile glass bottles; that is the method I used, in the publication "Standard Methods for Milk Analysis."

Mr. Schaefer: Q. That method you used is a standard method for determining the bacteriological condition of glass bottles?

A. Correct.

Q. Is that not so?

A. Correct.

Q. It has nothing whatsoever to do, then, does it, with determining the bacteriological condition of paper containers?

1233 A. To my knowledge, there is none except—

Q. Just a minute, Doctor.

Mr. Garipey: Go ahead, Doctor. Pay no attention to that.

A. (Continued.) —except where the health officers or the United States Public Health Committee, last June, made another formula where they formulated, referring to paper—or where the committee suggests—that 100 bacteria per gram of paper board should be the standard for paper.

Mr. Schaefer: Q. That's right. Are you willing to accept my word that they said nothing about any rinse test?

A. I will.

Q. Assuming that the United States Public Health Service has not prescribed any rinse test as standard for determining the bacteriological content of paper milk containers, has such a standard been prescribed by any one?

A. Not that I know of.

Q. Then, you were in error when you stated on your direct examination, and when you stated just a moment ago, that you determined the bacteriological condition, or, rather, the sanitary aspects of the Pure-Pak Container in accordance with the standard method of milk

1234 analysis; is that correct?

A. Which is used for glass.

Q. But you did not determine the sanitary condition of the Pure-Pak Container with reference to any standard method for determining the bacteriological condition of the paper container, did you?

A. Strictly speaking, you are correct.

Q. The absorption shown by the methylene blue test which you conducted showed that the absorption of that material was uniformly heaviest along the seams of the container, did it not?

A. No.

Q. Is that not true?

A. No. More around the corners where the paper was scored, rather than the seams.

Q. There were indications, however, from those tests of absorption in portions of the container away from the corners of the container?

A. Yes.

Q. Did you find any by the methlyn blue test that did not show absorption?

A. What is the question, please?

Q. Did you find any containers by the methlyn blue test that did not show absorption?

A. No.

1235 Q. When you were here a week or so ago, Doctor, you had with you a Dixie drinking cup which you referred to as a little Dixie drinking cup?

A. Yes.

Q. Do you remember whether you filled that cup to the top with the methlyn blue solution?

A. My recollection is that I filled it.

Q. To the top?

A. Yes.

Q. That is what I got from the transcript of the testimony, but I wasn't sure. Now, that cup which you brought here showed very much heavier absorption in the bottom of that cup than towards the top of the cup?

A. Yes.

Q. How do you account for that?

A. I don't know.

Q. Other than the methlyn blue test of the paper conducted to determine the quantity of milk absorbed into a paper container?

A. What I described yesterday.

Q. And that, as I remember it, was to fill the container with milk, allow it to remain filled with milk for how long?

A. About 24 hours, different lengths of time, it was.

Q. Varying lengths of time?

1236 A. Yes.

Q. After the container had been filled with milk and allowed to remain for varying periods of time, what did you do then, Doctor?

A. Poured the milk out.

Q. Yes.

A. Rinsed the milk out with water.

Q. Yes.

A. Then tried to get rid of the loose water in the container, and then weighed it.

The Master: Q. Weighed what?

A. Weighed the empty container.

Mr. Schaefer: Q. How did you try to get rid of the loose water in the container?

A. One way we tried it is to blow air, compressed air in the container for a very short time until you could see no drops of water.

Q. What other method did you use?

A. That was the principal method. Dr. Tracy may have tried something else that I don't know, when I was not present.

Q. That is the only method of which you are aware?

A. Yes.

Q. Why did you use a blast of compressed air to dry it?

A. To dry them quickly.

1237 Q. Why didn't you dry them with a cloth?

A. Well, I suppose we could do that, we could open them up and dry them with a cloth. That would be a good idea, too.

Q. Then you wouldn't have the possibility of the blast of compressed air removing some of the milk absorbed into the container, would you?

A. Correct.

Q. Now, was your observation uniform?

A. My recollections are that there was a variation.

Q. What were the results of the variation?

A. That I couldn't give you, off hand.

Q. There were variations?

A. There was some variation.

Q. What caused the variation?

A. That I don't know.

Q. With what size container did you perform these absorption tests?

A. Quart size.

Q. Did you ever do any with pints?

A. I don't believe so.

Q. Did you ever do any with half pints?

A. I don't believe so, although I don't know, Professor Tracy did some experimentation when I was not present. I don't know what he did.

Q. Then what did you do?

1238 A. Then we made plates from the milk.

Q. You examined the milk?

A. Yes.

Q. For B prodigeosis?

A. Yes.

Q. Your inoculating organism?

A. Yes.

Q. What does that have to do with the pouring lip?

A. Nothing, I said. I erroneously put it under that heading.

The Master: Well, it might have some reference.

Mr. Schaefer: You could have saved us a lot of trouble, if you hadn't.

The Master: Q. It might have some reference to it if the bacteria got in through the pouring lip?

A. That would be correct.

Q. It might get in through some other part?

A. Yes.

Q. But it might also get in through the pouring lip and that is the reason you included that test, test number four, in this exhibit, or that may be the reason?

A. The result would answer that question that you raised.

Mr. Schaefer: Q. Test number four, five, six and seven on plaintiff's exhibit 57 do not deal with the bacterial contamination of milk by the pouring lip of Pure-Pak Containers, do they?

A. No.

The Master: You had better put in the record just what you two have in mind, concerning that pouring lip.

Mr. Schaefer: Q. Dr. Prucha, what do you mean by the pouring lip of a glass bottle or a paper milk container?

Mr. Garipey: I think you had better define each, so you will get it clear.

Mr. Schaefer: Q. Is there any difference between the pouring lip of a glass bottle and the pouring lip of a paper milk container?

A. Well, my—the definition—

Q. Will you answer that question by yes or no, is there any difference between your pouring lip of a glass bottle and the pouring lip of a paper milk container?

A. No difference.

Q. Now, will you give your definition of the pouring lip?

A. That part of the container with which the milk comes in contact as you pour milk out.

The Master: Q. And the portion of the container 1240 with which the milk might come in contact as the milk is poured out would be not merely the aperture or opening through which the milk goes, but also in some instances, the outside of the container?

A. Correct, that is reasonable.

Mr. Schaefer: Q. Neither does one, nor does two, nor does three described in plaintiff's exhibit 57, involve the use of pint or half pint Pure-Pak Containers?

A. No.

Q. When were you last at the plant of the Fieldcrest Dairies, Inc.?

A. I am sorry, I couldn't give you the exact date.

Q. Approximately?

A. Early in the spring.

Q. Of this year?

A. Yes.

Q. February or March?

A. No. A little later.

Q. March or April?

A. March or April, that would be my recollection.

Q. When were you last there before that?

A. I was there about four or five times between the time they opened and started to use paper containers, and the last visit—it was somewhat scattered during that period.

1241 Q. Can you fix the time when they opened?

A. They opened last fall, I was visiting my son in Winnetka at the time.

Q. We don't need that.

A. And he took me out there, so I don't recall. I could get the information, but I don't recall.

Q. Was it November or October?

A. Probably they could tell you, it was the second day they started to use the paper containers.

Q. Now, when you were there, in the spring of 1939, what did you do? Did you watch the operation of filling containers, on that occasion?

A. Oh, yes. We made tests on two different visits, with the paraffin, in the paraffining well, as to sterility.

Q. Yes, now, at that time—that was in the spring?

A. Yes.

Q. At that time did you test the temperature in the paraffining well?

A. I did not test it with a thermometer.

Q. Did you ever?

A. I read the thermometer on the machine.

Q. Did you ever test it with a thermometer?

A. No.

Q. Did you ever time the period during which the containers are immersed in paraffin?

1242 A. Yes.

Q. At Fieldcrest Dairies?

A. Yes. That is fixed.

Q. Did you ever time it?

A. Yes.

Q. With your own watch?

A. Yes.

Q. When was that?

A. It was at one of the visits, and it was a number of times when we had the machine at our place.

Q. Doctor, I am asking you about your visits to the Fieldcrest Dairy Plant, I don't care about what you did at your place.

A. I watched it, with my watch.

Q. On one occasion?

A. Yes.

Q. Since the machine has been at the Fieldcrest Dairies?

A. Yes.

Q. You timed it with your watch?

A. Yes, sir.

Q. You found it to be what?

A. Approximately 28 seconds for the container to stay in the paraffining compartment, and out of that time it was submerged 12 seconds, completely, and in a hot well, paraffin being molten, I think for 8 seconds.

1243 Q. You don't know of your own knowledge at what temperature the paraffin is being applied to containers at the Fieldcrest Plant in their every day operation, do you?

A. When I was there the thermometer read between 170 and 172 degrees F.

Mr. Schaefer: Read the question.

(Question read by the Reporter.)

A. I didn't take it with my thermometer.

The Master: Q. Well, do you know or don't you know?

A. Well, I don't know, aside from reading the thermometer.

Mr. Schaefer: Q. The last time you did that was in March or April, 1939?

A. Yes.

The Master: Q. What was the temperature at that time?

A. It hovered between 170 and 172 degrees F.

Mr. Schaefer: Q. Referring to these tests that you made at the Ogden Dairy, Doctor, with whom did you discuss the taking of those tests before you took them?

Mr. Gariepy: I object to that. He has already gone over the Ogden Dairy and said he couldn't remember the man's name.

Mr. Schaefer: That is not what I am asking.

1244 The Master: Overruled.

Mr. Schaefer: Read the question.

(Question read by the Reporter.)

A. The superintendent of the plant, his first name is "Ed", that is what I call him.

Q. Before you went to the plant, with whom did you discuss the taking of those tests?

A. Nobody.

Q. You and Dr. Tracy?

A. Just came—

Q. Just happened there, by coincidence?

A. No. We came purposely.

Q. With whom did you discuss the taking of those tests before you went to the plant of the Ogden Dairy?

Mr. Gariepy: I object. He has answered. He said no one.

The Master: Overruled.

A. We carried on a project among ourselves.

Mr. Schaefer: Q. I am asking you for names.

A. Among ourselves, Dr. Brannon and Professor Tracy and myself.

Q. You discussed it with Dr. Brannon and Professor Tracy, and with anyone else?

A. Myself.

Q. Did you discuss it with anyone else?

A. No.

1245 Q. At any time prior to the time you appeared at the Ogden Dairy?

A. No.

The Master: Let me ask the question this way:

Q. Did you discuss the making of tests similar to the one you conducted at the Ogden Dairy, with anyone before going there, specifically referring to that particular dairy?

A. No.

Mr. Schaefer: Q. In the conduct of the survey at the University of Illinois, do you and Dr. Tracy and Dr. Brannon go in a body to make a rinse test?

A. Yes.

Q. Do you always all three of you go?

A. Not all three, sometimes one, sometimes two, sometimes three.

Q. How often have all three of you gone?

A. Not many times.

Q. Have you ever, before?

A. Yes.

Q. Where?

A. About 1935 or 1934 we went to one of the neighboring towns.

Q. What towns?

A. I think it was—I don't recall offhand, either Bloomington or Decatur.

1246 Q. That is the last time you all three went in a body?

A. Yes.

Q. Have your expenses in connection with your trip to Chicago, to make that test, been paid?

The Master: Read the question.

(Question read by the Reporter.)

A. Yes.

Mr. Garipey: Q. Referring to the Ogden Dairy test?

A. Yes.

Mr. Schaefer: Q. Who paid them?

A. The University paid Dr. Brannon and I was paid by the Dean Dairy Company for transportation.

The Master: Q. By whom?

A. Dean Milk Company.

Mr. Schaefer: Q. Did you explain to the Ogden Dairy Company that your expenses were being paid by the Dean Milk people?

A. No, I didn't say anything.

Q. In the conduct of your University of Illinois sur-

vey, generally, are your expenses paid by the Dean Milk Company?

A. No.

Q. In the conduct of your survey, generally, is it customary to report your findings to the Health Department in the jurisdiction in which your test is made?

A. No.

Q. In the conduct of your survey, generally, is it customary to report your findings to the dairy?

A. Yes.

Q. Why was that not done in this case?

A. It was an overlook.

Q. It was what?

A. We overlooked it. It was a mix-up.

Q. Did you state to any person at the Ogden Dairy whether or not the result of this test was to be offered in evidence in this case?

A. I didn't say anything to anybody.

The Master: Let's cut out a lot of questions here.

Q. All of the arrangements you made, Doctor, by what arrangement did you get any payment from the Dean Milk Company?

A. By what arrangement?

Q. Yes.

A. In connection with this lawsuit, there are certain things that were brought up and I wanted to perform them, like those six problems.

Q. Did you discuss with anybody your doing anything for which you might be paid?

A. No.

Q. What arrangements were made?

1248 A. No arrangement of any kind.

Q. Did you know before you went to this Ogden Dairy that your time would be paid for by the Dean Milk Company, or that you would get something from them for expenses, for your time and what not?

A. No specific arrangement, I was told that in case the University could not pay my expenses, and I would like to look into some phases of it, that my expenses would be paid.

Q. All right, now, who told you that—some representative of the Dean Milk Company?

A. Yes.

Q. You discussed with the Dean Milk Company or its representatives your work in connection with giving evidence in this case, is that right?

A. Some of the problems, yes; it was the problems of Dr. Arnold.

Q. You were told if you went to any expenses in money and incurred expenses in making of these investigations, you would be reimbursed?

A. For the traveling expense.

Q. Was there anything said about your time?

A. No.

Q. Have you been paid or do you expect any pay for your time?

A. No.

1249 The Master: Is that what you wanted?

Mr. Schaefer: Yes.

The Witness: No, I didn't receive five cents for my time.

The Master: Q. Have you gotten any fees anywhere along the line here for doing any of the work here?

A. No, aside from the exact traveling expense.

Q. Did you get any fees in this conference out here for these problems that Dr. Arnold wanted worked out?

A. No, I didn't get any.

Q. Didn't you fix a per diem or something for your work in connection with that, when you were here that time?

Mr. Gariepy: Don't shake your head, Doctor. Answer the question.

A. No.

Q. I thought there was some discussion here at the conference we had here of all of these doctors, whereby just the doctors would be compensated for their time in working out these problems that Dr. Arnold wanted worked out.

A. Yes.

Q. And I thought you said what you wanted per diem, is that right?

1250 A. For carrying out the problems?

Q. Yes.

A. Yes.

Q. Well, weren't you compensated for the time you had actually spent up to the time that the working out of these problems was abandoned?

A. No, not a penny.

The Master: All right. I think that is what you were getting at and so we have got it all out now, I think.

Q. Have you any arrangement or understanding or promise that you are going to be compensated for your expenses or for your time in this lawsuit?

A. No, none whatsoever, aside from information that Mr. Gariepy gave me, although it was no understanding, something like a dollar a day and traveling expenses, I don't know what.

Mr. Gariepy: If you are referring to me, all I gave you is subpoena fees, that is all I ever gave you in my life. Tell us if you had any conversation about fees of any kind.

A. I didn't intend—

Mr. Gariepy: Don't do that, don't mess me up in any fees here, I am not a party to any fees.

A. I have not been promised anything aside from traveling expenses. I have not handed in any expenses 1251 for my time.

The Master: I might add, it is quite customary for experts to be compensated for their time. That is what he is trying to get at.

The Witness: Yes.

The Master: He is trying to find out what, if anything, you are receiving, and who told you to do these things.

The Witness: We are working out these problems, this project, and I had an opportunity to do further study with the machine, and we didn't have it down there; it was here at Fieldcrest. We didn't have money in the treasury, in the budget.

The Master: Go ahead. Have you any more questions now, Mr. Schaefer?

Mr. Schaefer: That is all.

The Master: Are you through with the witness?

Mr. Gariepy: I would like to start in on Dr. Prucha, and I think it would be at least an hour or an hour and a half, and since it appears that the subject matter of the amount in controversy is going to be raised as an issue, and the facts constituting the subject matter of the controversy included in the stipulation by counsel for defendants—

Mr. Schaefer: That is not so.

Mr. Gariepy: All right, will you stipulate to it?
 1252 Mr. Rall: Mr. Schaefer stated he could not stipulate to the ultimate fact, but we were to submit to him those evidenciary facts that we would expect to prove, to see whether he would agree to them.

Mr. Schaefer: That is a statement of what occurred. I have stipulated to one affidavit that, at the time, was what Mr. Gariepy told me his proof would be on that question.

The Master: Are you ready to proceed with the redirect examination, Mr. Gariepy?

Mr. Gariepy: Yes.

Redirect Examination by Mr. Gariepy.

Q. With regard to this matter of compensation for your services or in connection with your appearing in this cause, have you had any conversation with me with regard to being paid for any testimony you gave in this clause?

A. No.

Q. Have you ever received any money from me, other than \$1.10 subpoena fees, when you were in the office the other day?

A. No.

Q. Mr. Schaefer asked you concerning conversations with somebody by the name of "Ed", as you gave it, at 1253 the Ogden Dairy, concerning this matter of making a report of the result of your test at the Ogden Dairy?

A. Yes.

Q. Did you talk to him last night concerning this matter of giving a report?

A. Yes.

Q. What did he tell you had happened as a result of not giving him a report?

Mr. Schaefer: That is objected to. How could a conversation he had with the superintendent alter this case?

Mr. Gariepy: He testified that they overlooked it and I want to show what happened as a result of the fact they overlooked it.

Mr. Schaefer: That is not material to any of the issues here.

Mr. Gariepy: I think it is very material.

The Master: I sustain the objection. I don't see any materiality as to what happened.

Mr. Gariepy: Why isn't it material to show what hap-

pened? He asked whether he gave them a report and you let him go into the report.

The Master: I sustain the objection.

Mr. Gariepy: I want to make my record.

The Master: Make your offer of proof.

1254 Mr. Gariepy: I offer to prove that Mr. Superintendent of the Ogden Dairy called Mr. Prucha last evening and informed him that the Board of Health had served notice upon the Ogden Dairy that the dairy must be closed and that the count was too high, and he asked Dr. Prucha whether he would appear at the Board of Health to aid him with regard to this matter of closing the Ogden Dairy.

I further want to bring in Mr. "Ed", the superintendent who had that conversation, and who called me several times last evening, concerning the closing of the dairy by the Board of Health, as result of this report.

The Master: I don't see the materiality of it.

Mr. Gariepy: I will offer it and put it into the record.

The Master: You may do that.

Mr. Schaefer: Do you want to see this?

Mr. Gariepy: Yes.

Q. Doctor, Mr. Schaefer has handed me a document dated July 25, 1939, concerning the City of Chicago paying Dr. Bailey \$150.00 for services that he rendered in connection with conferences with the Master on these suggested procedures. Did you ever receive a copy of that letter
1255 or did you receive any letter from me that I was going to pay you in connection with this matter?

A. I received nothing.

Mr. Schaefer: State what the letter says.

Mr. Gariepy: The letter says that they will pay Dr. Bailey and we will pay whatever the bill of Dr. Prucha is, that is the sum and substance of the letter, is that right?

Mr. Schaefer: That is right.

Mr. Gariepy: Q. At whose suggestion did you go to the Fieldcrest Dairies plant at Chemung, Illinois, in the spring of 1939 and perform some check-up or tests with regard to the paraffin bath and the amount or the period of immersion of the container in the bath?

A. At my own initiative.

Q. For what other purpose other than your initiative, what was the object?

A. To find out the sterility or the bacteriological condition of the paraffin while it was being used.

Q. Had you performed any such tests and observations while this same Pure-Pak machine was at the University of Illinois?

A. I examined the paraffin once or twice, not in the same manner.

Q. Did you take any time count?

A. Yes.

1256 Mr. Schaefer: When and where.

Mr. Gariepy: I withdraw that. That is out at the University.

Q. As I remember your answer on cross-examination, you found the temperature of the paraffin was from 170 to 172 degrees?

A. Correct.

Q. Have you an opinion as to whether that temperature of paraffin being applied to the Pure-Pak Container in the paraffin bath for a period of 28 seconds will turn out and result in a safe and sanitary container from a public health standpoint?

A. Yes.

Q. What is that opinion?

A. That it is safe and sanitary.

Q. What are your reasons for your opinion and conclusion, Doctor?

A. The reasons are these: In the first place, the paper made for these containers is sterile, commercially speaking; that the paper as I have examined is protected, wrapped and sealed and sent to the carton company; there it is protected, being kept in special rooms. After it is printed and while it is being printed and handled, the operators in the paper mill are under medical inspection, they are obliged to have their hands examined
1257 by a nurse in case they go out of the room, and before they come in; they have to report their health and, in other words, in the paper mill, the paper mill takes all possible precautions against any contaminations of paper by the attendants handling the paper.

Then the containers, after they are sealed, are again packed and sealed in cartons and shipped to the milk plant, so that when the paper container is taken out of the carton it is essentially sterile.

The paraffin which is being used is bacteriologically sterile, we never could find any bacteria in it.

After the container is paraffined it is not exposed to air,

so that it is not contaminated to any appreciable extent until it is filled with milk.

In other words, the paper is sanitary and the container before it is paraffined is sanitary. In addition, the paraffin, at that temperature, itself has a real bacteriacidal property, killing bacteria on the paper, it covers them in case some of those are not killed, like spores, it tends to cover them and hold them there.

This is further proof, we have examinations which are used in dairies for the purpose of examining containers and all of the tests have shown that the container, so far as the number of bacteria in it, when the same method is applied to paper containers as glass containers—

Mr. Schaefer: I move to strike that as not responsive to the question, which dealt solely with his reasons.

Mr. Gariepy: I will agree that may go out.

The Master: It may go out.

Mr. Gariepy: Q. I am just asking you to give the reasons for your conclusion with regard to the paraffining of this container at this temperature for this period of time, exposure of 28 seconds in the bath?

A. Yes.

Q. Have you given all of those reasons?

A. Not quite.

Q. Give the next reason if you have one there?

A. We have a rinse test; we have a disintegration test of the container walls, all of which tests show that the containers are essentially free from bacteria.

Mr. Schaefer: I move to strike that last sentence as not responsive.

The Master: I will let it stand.

Mr. Gariepy: Q. Doctor, is it possible to have this 1259 machine set so that the temperature of the paraffin will be 180 degrees F?

A. Yes.

Q. Is it possible to have the immersion or the exposure for a time equalling or amounting to 30 seconds?

A. No.

Q. Can that be done by adding a valve or a cock on it and changing the gears? Just answer the question, yes or no.

A. I don't see any reason why not. There may be engineering difficulty there that I am not acquainted with.

Q. Would you say that the present bacteriacidal treat-

ment given to the Pure-Pak Container at the Fieldcrest Dairies, from 170 to 172 degrees F., at 28 seconds immersion or exposure is equivalent to the bacteriacidal treatment given if the machine were set at 180 degrees F. and 30 seconds exposure?

A. You would find no difference in the bacteriological condition of the container.

Q. Do you recommend now, from your experience and research work and study of this subject, that there be an advancement in the temperature or an increase in the height of the temperature at which the paraffin bath operated, from 170 to 172 degrees F. upwards?

1260 A. I don't see any advantage of a change.

Q. Mr. Schaefer has asked you on cross-examination with regard to the United States Public Health Service making some suggestions and recommendations regarding a standard concerning the paraffin bath and the container being given bacteriacidal treatment equivalent to contact with paraffin for at least 30 seconds and at least 180 degrees F. in approved equipment operated in an approved manner. Is this approved equipment, the Pure-Pak Container Machine at the Fieldcrest Dairies Plant? Do you consider that approved equipment from a sanitary standpoint and from your study and experience?

A. Yes.

Q. Is it operated in a sanitary manner?

A. Yes.

Q. Concerning this test upon the pouring lip, would you find any difference in the result in the event you had used pints or half pints, instead of quarts in performing these tests?

A. We don't find any difference.

Q. Would you find, or expect to find any difference if you had used pints or half pints or quarter pints?

Mr. Schaefer: I object to that. The witness says he never did any pints, half pints or quarter pints.

1261 The Master: He may answer.

Mr. Gariepy: I asked him whether he would expect to find any difference if it had been a pint, half pint or quarter pint, with the same pouring lip.

A. I would not.

Q. I am referring to Plaintiff's Exhibit 57 that you entitle "Test on the Pouring Lip." Those were quarts.

A. Those were quarts.

Q. With regard to these tests on absorption, you used quarts in performing those tests?

A. Yes.

Q. I asked you whether you would expect to find any difference in the amount of absorption, having in mind the area of the bottle, if you had used pints instead of quarts?

A. No difference whatever in proportion to the size.

Q. They are both made out of the same type of material?

A. Yes, sir.

Q. And the same paraffin?

A. Yes, sir.

Q. Is there any difference in the paraffin application on the pints and the half pints than there is on the 1262 quarts?

A. No.

Q. Is there any difference in the paraffin application, whatever, on the pouring lip on either of them, except in size?

A. No.

Q. Is there any difference in the pouring lip on either of them, except in size?

A. No.

Q. Concerning this absorption test, he asked you why you did not use a cloth instead of compressed air?

The Master: In drying the container.

Mr. Gariepy: He asked you why you did not use a cloth instead of compressed air before you tried to ascertain the result of the test as to the amount of absorption. If you had used the cloth, would you have been able to pick up all of the moisture with the cloth, as well as you could with the compressed air being applied?

A. It might be difficult to pick it out from the corners.

Q. Then the compressed air method would pick it up better and more accurately?

A. We thought so.

Q. Did you find anything with regard to using the compressed air on performing this test that showed or 1263 indicated that the milk penetrated and was absorbed into the board by reason of the fact you used the compressed air test?

A. The conclusion we drew, the only results we got were that the empty container increased in weight.

Q. You did not follow my question. Whether you found that with the compressed air method which you used in

drying the container, showed or indicated that there was any of the milk that was caused to penetrate into the board by reason of that method?

A. Yes.

Q. Did you find that the milk had gone in by reason of the fact you used the compressed air?

A. No, no.

A. Do you know of any regulation of the United States Public Health Service, or any suggested regulation they have where they mention that the container shall be a glass container?

A. Paper container is permitted, also.

Mr. Garipey: I will have these three pages of typewritten material marked Plaintiff's Exhibit 61 for identification.

(Three typewritten pages referred to was thereupon marked by the Reporter "Plaintiff's Exhibit No. 61 for identification.")

Q. You were asked on cross-examination concerning some recent suggestions of the United States Public Health Service, concerning bacteriacidal treatment and their rules and regulations, and you stated you had heard of them and seen them, or something to that effect, is that right?

A. Yes.

Q. I will ask you to look at Plaintiff's Exhibit 61 for identification and tell me whether that is what you saw and that is what you heard about?

A. That is what I saw. I saw a copy of it.

Q. Is there anything in that Plaintiff's Exhibit 61 for identification concerning glass bottles being used as an acceptable container or it being limited to glass bottles as the acceptable and only acceptable milk container?

A. No.

Q. With regard to the last line where an asterisk appears, referring to paragraph F above, this item . . . "temperature subject to change as result of further studies being conducted by the National Institute of Health." Who is this National Institute of Health, if you know?

A. I understand it is part of the United States Public Health Organization, Federal Security Agency, United States Public Health Service, Washington, D. C.

1265 Q. Do you know of any rule, regulation or suggestion from this body, United States Public Health

Service or this National Institute of Health which states that glass bottles alone are used and can be used as milk bottles?

A. No.

Q. Is the same standard that you used with regard to the Pure-Pak Container the same standard test and method equally applicable to glass containers?

A. I think so.

Q. Is another method and a more severe method applicable to the paper or Pure-Pak Container that is not applicable and can not be used on the glass container?

A. This disintegration test.

Q. Why is that more severe?

A. Because it shows the condition of the paper, sanitary condition of the paper even before it is paraffined, and after it is paraffined, a little more than the rinse test.

Q. Have you an opinion as to whether public health authorities have adequate and sufficient bacteriological control over the single service container now by reason of the rinse test and the disintegration test?

A. Yes.

1266 Q. What is that opinion?

A. My opinion is that it is more severe, the two tests together.

Q. When you say "the two tests together" you are referring to the rinse test and the disintegration test?

A. That is correct.

Q. You told Mr. Schaefer on cross-examination that you got in trouble referring to names. Was that this Ogden Dairy question you referred to?

A. Yes.

Q. This trouble was this call that you had as a result of it?

A. Yes.

Q. With regard to the chances of contamination as compared in the Pure-Pak Container equipment and machine, to the glass equipment and filling machine, what about the manual handling or the manual contact giving occasion for contamination in each? Compare them?

A. The manual handling?

Q. Or manual contact?

A. The filling compartment, the valves are taken apart and then cleaned and then they have to be assembled before they can be used.

Q. In what machine is this?

1267 A. That is in the glass filling machine.

Q. Where is there any handling of the paper container, Pure-Pak Container, in the Pure-Pak Machine?

A. In the Pure-Pak Machine the filling compartment is made up of only two—it has to also be assembled, to be handled to be put together, but it is much more simple to sterilize.

Q. Where is there any handling in the filling process in the Pure-Pak Machine, that is my question?

A. During the filling there is no handling.

Q. The human hand does not come in contact with it from the time the blanks are inserted in the machine until it comes out as the finished product, stapled and put into the cartons?

A. Yes, sir.

Q. Is that correct?

A. Correct.

Q. Concerning this matter of adhesives that you were asked about on cross examination and the fact that such preservatives as sodium benzoate is put in, do you know whether or not sodium benzoate is put in drinking cups in the formation and fabrication of making a complete drinking cup?

A. Wherever they use an adhesive.

Q. Is it used in paper straws?

A. The same thing with straws.

1268 Q. Straws that you use at the soda fountain when you sip liquids?

A. Wherever there is any paper stuck together, some sort of adhesive is used.

Q. Does that present any health problem?

A. No.

Q. Is it probable that this preservative such as sodium benzoate would come in contact with the milk?

A. The probability is remote, although an infinitesimal amount might come in contact with the milk.

Q. Suppose an infinitesimal amount did come in contact with milk, what would you expect the result to be?

A. Nothing.

The Master: Q. What do you mean by "nothing"? When you say "nothing" what do you mean?

A. There will be no effect of any kind on bacteria in the milk or in the healthfulness of the milk.

Q. How about taste?

A. Neither on the taste.

Q. Color?

A. Neither on the color.

Q. Neither on the color?

A. No.

Q. How about odor?

A. Not on odor, no influence of any kind.

1269 Mr. Schaefer: I move to strike that, because Dr. Prucha is not qualified to answer that question. He is not a doctor or a physician or a doctor of medicine. If he talks about taste, I don't care, but if he talks about anything else, he is not a doctor of medicine.

Mr. Rall: You asked about preservation.

The Master: We will qualify his answer and let it stand only as to the bacterial effect on the milk.

Mr. Gariepy: Q. Would it have any deleterious effect upon the milk if it should come in contact with it?

A. No.

Q. Do you know whether sodium benzoate is a preservative which is permitted by the United States Pure Food Laws?

A. It is permitted for preservation in foods.

Q. Is it used in such foods as ketchup?

A. Yes.

Q. What other foods?

The Master: Q. Well, is it used in milk?

A. No, you don't need to.

Q. What?

A. We don't need to.

Mr. Gariepy: Q. Concerning this matter of absorption and the result of the methylene blue test as shown
1270 by your application of it on a Dixie cup and also on the Pure-Pak Container, would you say that the Pure-Pak Container shows less degree of absorption and less chances of absorption than the Dixie cup?

A. I would say less.

Q. Is there any difference, Doctor, in the efficiency of the paraffining whether it is done on a pint Pure-Pak Container or on a quart, as you were asked on cross-examination?

The Master: Just answer that question. Tell us.

Mr. Gariepy: Q. Is there any difference in the efficiency

of the paraffining on a pine container as compared with what job is done on the quart container?

A. My opinion is there is no difference.

Q. Concerning defendant's exhibit 7 which Mr. Schaefer showed you, and plaintiff's exhibit 54, the tests were higher in defendant's exhibit 7 than in plaintiff's exhibit 54 because of what reason?

A. That defendant's exhibit 7 refers to the disintegration of the paper board and the number of bacteria in it per gram. The other exhibit, plaintiff's exhibit 54, refers to the number of bacteria determined by the rinse test, I think, on unparaffined containers.

Q. That is also upon different types of board used in defendant's exhibit 7 than in plaintiff's exhibit 54?

1271 A. Yes.

Q. Does that also show that the disintegration test is a more severe test to ascertain the bacterial quantity?

A. Yes, sir.

Q. Defendant's exhibit 7 and plaintiff's exhibit 54, compared?

A. Yes, sir.

Q. If I remember right, looking at defendant's exhibit 7, you pointed out in the last column where the Cherry River paper board was shown up on the test?

A. Yes.

Q. And how the count on it reflected?

A. Yes.

Q. What did it show as compared with the other papers?

A. It was the lowest, it had the lowest bacterial count.

Q. How low, that is, comparatively and relatively, how low was it with regard to one thousand on a quart or one hundred per gram; was it within those radii?

A. It was below one hundred in all cases.

Q. You were asked whether the drying process, the drying effect of the paper board, played any part or had any effect in the results shown in plaintiff's exhibit 1272 46, as compared with plaintiff's exhibit 49, how much, if any, did the drying process in the board have any effect upon the results shown in either of those two tests?

A. I would have to see the exhibits.

Q. I show you plaintiff's exhibits 46 and 49.

A. The question again.

Mr. Gariepy: Read the question.

(Question read by the Reporter.)

A. Plaintiff's exhibit 46 was conducted purposely to show the effect of drying on a given bacteria. Plaintiff's exhibit 49, the results are from the rinse test of paraffined containers, or Pure-Pak.

Q. Has that anything to do with the drying process or the drying properties of the board, or the self-purification of the board, as you call it?

A. It does not, only so far as drying or dried condition of the containers before they were paraffined in plaintiff's exhibit 49.

Q. With regard to plaintiff's exhibit 46, and with reference to the absorption of moisture; does it not furnish a field—that is the moisture itself—for the growth of bacteria?

A. If drying is perfected?

Q. Answer my question?

1273 The Master: Read the question.

(Question read by the Reporter.)

A. If drying is prevented, they might grow in the paper, they might increase in the paper.

Q. If drying is—

A. Prevented.

Q. In other words, if they are wet?

A. Yes.

Mr. Gariepy: Q. Then the growth will continue?

A. Yes.

Q. Will that growth be of spore or non-spore forming bacteria?

A. Those would be of both.

Q. Both?

A. Yes.

Q. If they are wet?

A. Yes, that would be the tendency.

Q. What about these spots in the paper board that you were asked about on cross-examination?

A. Yes, I remember.

Q. What do you call spots, and how do they appear in the board and how do you explain them?

A. In the first place, I have never come across a single spot on the paper or in the containers, of the Pure-Pak Containers.

Mr. Schaefer: I move to strike that as not responsive.

The Master: It may be stricken. Answer the question.

The Witness: What is it?

The Master: Read the question.

(Question read by the Reporter.)

Mr. Gariepy: I said board, now.

A. I see. We have examined them only in the paraffined container.

Q. Did you find any in the paraffined container, finished product?

A. We found in some containers—

Q. I mean Pure-Pak, now?

A. No.

Q. At any time?

A. No.

Q. In your two years and six months of research work, Doctor?

A. No.

Q. Go on and tell what these spots were that you found in the board, other than the Pure-Pak board, that you referred to.

The Master: Q. Did you find them in anybody else's board?

A. I found them in the finished containers.

1275 Q. You did?

A. Yes.

Mr. Gariepy: Q. Whose finished containers?

A. I prefer not to say.

Q. Was it Pure-Pak Container?

A. No.

Q. Was it any container where the board was made at the Cherry River Paper Mill?

A. No.

Q. Doctor, with regard to these spots Mr. Schaefer asked you about and called them slime spots, what are they?

A. We have tried to determine what they are, and they were not in all cases slime spots.

Mr. Schaefer: When did Mr. Schaefer call them slime spots?

Mr. Gariepy: Whatever he called them—spots.

A. Spots.

Q. What did you find them to be?

A. We found them to be always on the bottom of the container and it seems, so far as we could figure out, that the paraffin at that point got too hot or something and did not deposit a layer of paraffin, so that that spot was not paraffined sufficiently. They may in some cases have also been caused by the slime organisms.

1276 Q. Did you find any that were traceable to slime organisms?

A. We did not follow it up.

Q. In your two years and six months of research work?

A. No, we did not follow that point, because after a while it was corrected by the concern.

Q. With regard to this matter of taste in the Pure-Pak Container, and compared with taste in the glass bottle, do you know whether or not the effect of light upon the glass bottle has anything to do with the matter of taste of milk in the glass bottle?

A. Yes.

Q. What effect does it have?

Mr. Schaefer: If the Master please, I object to that, because that has already been gone into by another witness and, in the second place, it is not proper redirect examination.

The Master: I will let him answer, if he knows anything about the effect of light.

Mr. Gariepy: Read the question.

(Question read by the Reporter.)

A. We found upon tests that when a glass bottle of milk and a paper container of milk are exposed to sunlight, that the milk in the glass bottle will de-

1277 velop flavor very rapidly, whereas—

The Master: Q. What do you mean—sour flavor?

A. No. Due to the sun rays on some ingredient of the milk.

Mr. Gariepy: Q. Did you find there was any change in the flavor of the milk in the Pure-Pak Container exposed to the sun at the same period of time?

A. No.

Q. Do you know that they use colored bottles for liquids, such as beer?

A. Yes.

Q. Do you know why they do that?

A. For that very purpose, the rays of the sun that do the harm do not penetrate the colored glass.

Q. When you referred to taste in this matter I am referring to, what was called by Mr. Schaefer as "off-flavor" due to exposure, did you understand that and do your answers fit that same definition concerning taste as "off-flavor"?

A. Off flavor.

The Master: Is this witness now testifying as an expert on bacteria and also as an expert on colors and taste?

Mr. Gariepy: He is testifying as an expert with regard to his experience on glass bottles and paper 1278 containers and putting them both to the same test to see how light affects them.

The Master: But he is not an expert on light.

Mr. Gariepy: Q. Does light enter into your work and research? Is it a factor?

A. It is a factor, yes.

The Master: Q. Insofar as your bacterial work is concerned?

A. The experiment is so simple that anybody can perform it.

The Master: Go ahead.

Mr. Gariepy: Q. Are some rays of light germicidal?

A. Yes.

Q. Doctor, in your examination of the Cherry River Paper Mill two years ago, did you find water in the calender stacks down there?

A. Yes.

Q. What with regard to the quality of the water in the stacks?

A. It was sterile.

Q. You told Mr. Schaefer that you thought it was advisable that medical inspection of the employees and such matters as dress be cared for and attended to at the paper mills. Do you have the same opinion with regard to dairies using glass bottles?

A. Yes.

1279 Q. Is there any difference or would there be any difference from an aesthetic standard or view?

A. No.

Q. The same principles are applied?

A. Yes, sir.

Q. To serve the same purpose?

A. Yes, sir.

Q. You also told him that you thought that means or

methods should be adopted to protect containers from contamination at the conversion plant. Do you know whether that is being done in the use of the Pure-Pak Containers, here?

A. Yes, sir.

Q. Referring to the Gardner-Richardson Plant?

A. Yes, sir.

Q. Do you know whether the methods employed at the Fieldcrest Dairy Plant, where containers are received in blanks, are to prevent contamination?

A. Yes.

Q. What are those methods?

A. They are sealed in the Gardner-Richardson place.

Q. Take the Fieldcrest Dairies, what are the methods at the Fieldcrest Dairies with regard to the blanks as they are received from Gardner-Richardson, to prevent contamination?

A. They come in sealed cartons and they are 1280 stored in a special room.

Q. What measures or precautions are taken in the storage to prevent contamination that you observed?

A. The room is used only for that purpose. It is kept clean.

Q. Did you see any health problem concerning storage and keeping of those containers before they are put into the machine?

A. No.

Q. You were asked concerning your 1937 report to the Milk Sanitarians at Louisville?

A. Yes.

Q. Doctor, with regard to this paper in 1937 that you read at the Louisville convention, what was that paper, what was your capacity and composition of the paper for that meeting?

A. It was presented on a program, it was presented as a progress report, in the study.

Q. After how many months of study did you present your progress report?

A. We started in February and this was presented in October.

Mr. Gariepy: I offer in evidence as plaintiff's exhibit 62 copy of the article referred to by Mr. Schaefer, having been delivered in Louisville in 1937, entitled "Sanitary aspects of Paper Milk Containers," with the name "M. J. Prucha" under the title.

Mr. Schaefer: I object to receipt of that document in evidence.

The Master: You will supply that copy to the reporter who will mark it as plaintiff's exhibit 62.

Mr. Gariepy: Yes.

Mr. Schaefer: I object to its admission.

The Master: On what ground?

Mr. Schaefer: Several grounds, it is encumbering the record, and we are going to have a terrific record here.

The Master: It is just a small document. What is the second ground.

Mr. Schaefer: Second ground, that the substance of that exhibit is already in evidence in plaintiff's exhibit 4, and it is a needless, senseless duplication.

The Master: I will let it go in as being the whole of the article, portions of which were referred to by counsel for defendants.

(The said article so offered and received in evidence were marked "PLAINTIFF'S EXHIBIT NO. 62.")

Mr. Gariepy: I will ask that this typewritten material, consisting of seven sheets, be marked for identification as plaintiff's exhibit 63.

(The said 7 sheets referred to were thereupon marked by the Reporter "Plaintiff's Exhibit No. 63 for identification.")

Mr. Gariepy: I ask leave to have this article—"Are paper milk containers sanitary?" identified as plaintiff's exhibit 63 and received in evidence; it being the same copy concerning which counsel has cross-examined the witness, and I ask leave to substitute for it a true copy.

Mr. Schaefer: I object to that, if the Master please, and I would like to amplify my objections to the preceding exhibit. Both of these exhibits are full hearsay.

The Master: The only thing that occurs to me is that if you try to introduce a statement for the purpose of contradicting the witness, and refer only to portions of it, the opposing side has a right to put in the whole statement.

Mr. Schaefer: I would think only such parts as refer to the matter in question, but, here, for example—look at that.

The Master: It is not proof of the facts therein stated. The only purpose of permitting the whole statement to go in is that the other portions not referred to by you

may explain and qualify the portions that you specifically referred to; but introduction of the whole statement does not necessarily mean everything in it is to be taken as substantive proof of everything there stated.

Mr. Schaefer: That is the effect of it. It is awfully difficult to differentiate.

The Master: It is only introduced as being the whole of the statement referred to by the cross examiner, for the purpose of contradicting the witness, the rules under which the whole statement may go in.

Mr. Schaefer: If it is a book, the whole book goes on, but I submit that is not so.

The Master: I will let it go in under the rules which permit the whole statement to go in. If any one tries to use the statement for some other purpose, we can meet that situation when we come to it.

(Said 7 sheets referred to, so offered and received in evidence, were marked "PLAINTIFF'S EXHIBIT NO. 63," and same are hereto attached and made a part hereof.)

Mr. Gariepy: Q. Referring to plaintiff's exhibit 63 and the test that you set forth in that report, Doctor, shown on the top of page 210, entitled "Table 4—Killing B-coli on paper by dipping strips of inoculated paper in hot water—each strip inoculated with 5 million bacteria," why isn't water used in this matter of turning out the finished product other than paraffin, if it has such good sterilizing effect as shown in this table?

A. It does not have waterproofing property.

Q. Is there anything else other than the waterproofing property being absent from hot water?

A. It would spoil the paper, soak it, and it is impossible to use it.

Q. This matter of the temperature of the water at 150 degrees as shown in Table 4 on plaintiff's exhibit 63, does that have anything to do with regard to the comparative temperature of paraffining at 170 or 172 degrees F?

A. I would say no.

Q. You answered a question concerning this matter of aesthetic and sanitary reasons. Does the aesthetic point or item have any bearing upon the sanitary qualities of the finished product itself, such as the Pure-Pak Container, here?

A. No.

The Master: Q. It might have?

A. It might have.

Mr. Gariepy: Q. In what way, Doctor? Will you explain to the Master?

A. We usually associate bacteria with dirt, so 1285 that wherever we have dirt you will have probably more bacteria of all kinds.

The Master: Q. You modify your answer "No," by that statement?

A. Yes.

Mr. Gariepy: Q. This aestheticity can be called and phrased as sort of window-dressing?

A. Yes.

Q. Besides the window-dressing, it gives to the product, or the effect, it has a sanitary objective, aesthetic as the hands touch it, or the conditions there?

A. Yes, sir.

Q. You were asked whether the thickness of the board here which was used, which was board described as the thickness in plaintiff's exhibit 46 of .017, the exposed edges on it had anything to do with the amount of bacteria found in the count. Does it, or not?

Mr. Schaefer: I submit no such question was asked.

Mr. Gariepy: You asked him if it did not have exposed edges, does this not increase the amount of absorption, and so on.

The Master: Let him answer.

Mr. Gariepy: Read the question.

1286 (Question read by the Reporter.)

A. No.

Q. Would the exposed edges, in your opinion, on this, have anything to do with the matter of the absorption?

A. I don't think so.

Q. Would the exposed edges on this have anything to do with whether the board was sterile or "unsterile" as you put it?

A. No, it would make no difference.

Q. This bacteriacidal effect of these hot rollers in the mill you were asked about, is that bacteriacidal effect due to the fact that the heat is in the rollers or due to the fact that the water is taken out of the paper board? Which is it?

A. I think it is due to the heat, fundamentally.

Q. If the water were not taken out of the board by the heat, what would you expect to find, concerning bacteria in the board?

A. It could not be killed.

Q. It could not be killed?

A. No.

Q. Why?

A. Well, if the rollers would not heat the paper enough to drive the moisture out, the water would not evaporate and the paper would not be heated high enough.

Q. You were asked by Mr. Schaefer concerning this suspension that you used in plaintiff's exhibit 46, whether this suspension would give the contamination, the same as would be expected to be found in the use of the containers under normal conditions in a normal way. What would you say as to whether this suspension would or would not give the same amount of contamination as would be expected under normal conditions?

A. This contamination was many fold larger than would be expected.

Q. Why did you insert in this contamination or suspension a portion of sterile milk?

A. Duplicating, to some extent, the natural contamination where, as Mr. Schaefer indicated, as the nasal excretion—a little milk in the water protects the bacteria and they don't die quite as quickly as when pure water is used.

Q. You were also asked why it was that in your direct testimony you did not give the results of an experiment you reported in your November, 1938 article which is plaintiff's exhibit 63 here, where you used E-coli, showing that the bacteria lived a period of four days, and instead of giving that, you gave the report in plaintiff's exhibit 46 here, showing a living bacteria for five hours. Were those two tests performed under the same conditions?

A. Not quite.

Q. What were the differences and how did you account for the different results you got?

A. In the first place, in the paper, I said—46—and I referred to both B-prodigiosis and B-coli, and clumped them together and gave a rough estimate of the dying of them as to time. That paper deals with, in general, things, rather than specific exact. To be on the safe side, I said it takes about four days. The tests have shown over and over again that that time is shorter.



Q. In one of these tests did you use the petrie dishes for dipping?

A. Yes.

Q. Which one was it, the test shown in the 1938 article, the one showing four days of life?

A. No. There is a table here showing the killing of B prodigeosis, that one experiment.

Q. It is one of these that you were cross examined about showing life as being five days, comparing it with plaintiff's exhibit 62, showing four days?

1289 A. It does not seem to be here.

Q. It is not in there?

A. No, except it gives a paper on drying.

Mr. Gariepy: May I see that exhibit about which you were asking the Doctor concerning that test in plaintiff's exhibit 62, as compared to the other?

Mr. Schaefer: Yes.

Mr. Gariepy: Q. Find this table here, Doctor, showing the longevity of bacteria as five days. That is plaintiff's exhibit 62.

A. B prodigeosis, paper strips dipped in bacteria suspension of 20 million cells per m.l.

Q. Referring to page 249 of your paper entitled "Are paper milk containers sanitary", about which Mr. Schaefer asked you.

The Master: What is the date of it?

Mr. Gariepy: 1938, November.

Mr. Rall: Dairy Manufactures Conference, November, 1938. November 16, 1938.

Mr. Gariepy: Q. The third paragraph on page 249, have you read it?

A. Yes, sir.

Q. Have you found now this report and this test referred to in your November, 1938 article, concerning the test to ascertain the longevity of bacteria and which 1290 showed that they lived for four days? Have you found that in this article?

A. Yes, sir.

Q. How does that test compare with the test shown on plaintiff's exhibit 46, with regard to the procedures used there?

A. The test differed in one respect, that after the strips of paper were inoculated and allowed to dry in the air, then they were put in petrie dishes to keep from air

contamination, and it may have been that they did not dry or were kept damp longer in there; that may be the explanation. I would add, however, that this statement is a general statement, not referred to any specific test, a general statement from a number of tests.

Q. On what kind of board?

A. On paper board used for paper containers.

Mr. Schaefer: Q. When you say "this statement" you refer to the statement which you just read from your 1938 paper?

A. Yes, sir.

Mr. Gariepy: Q. With regard to this matter of computation of the result of your test in plaintiff's exhibit 49, is the computation that you made here, and the manner in which you made computations in performing these 1291 tests and arriving at these results the standard method used by bacteriologists in the laboratory?

A. Yes, sir.

Q. I will ask you the same question with regard to the results shown on plaintiff's exhibit 51, and your method of calculating or estimating the amount of bacteria in performing that test. Were those methods by which you computed and estimated the amount of bacteria, as referred to on cross-examination, the usual standard method employed by bacteriologists in laboratories?

A. Yes.

Q. Is there any better method than that method you employed to accurately ascertain the results? Do you know of any better one?

A. No.

Q. Concerning this matter of a certified list, or a list of certified mills, do you know of any such list of mills that is certified today by anybody to public health sanitarians?

A. No.

Q. With the rinse test and the disintegration test applicable upon the paper board, as compared with the rinse test applicable upon the glass milk bottle at the dairy, do you find any occasion for a list of those mills first to be given before the public health is protected by public health authorities in supplying milk in paper containers?

The Master: I don't know what you mean.

(Question read by the Reporter.)

Mr. Gariepy: I withdraw the question. I am going to make it shorter.

Q. You talked about the certified mills, or the mills being certified by a list?

A. Yes.

Q. You told Mr. Schaefer you thought some sort of referee or somebody ought to be selected to do it; do you remember that?

A. Yes, sir.

Q. Having that in mind, and also having in mind the test that the paper container may be put to, that is the rinse test and the disintegration test; comparing that test with the test that is applicable for the same purpose of ascertaining the sanitary condition of the glass bottle, which is the rinse test, are you of the opinion that public health would now be preserved without any such certified list of mills being given to public health officials, or it only applying the disintegration test and the rinse test on the paper container?

A. Yes, sir.

Q. It would be?

1293 A. Yes.

Q. Do you know any industry where there is a certified list of mills or a certified list of manufacturers given to any authorities before they use the product? Have you recommended any such thing in your forty years of experience as a bacteriologist?

Mr. Schaefer: I submit that question has been answered. I asked him that.

The Master: Let him answer it again.

A. As I recall, I said no.

Mr. Schaefer: That is right.

Mr. Gariepy: Q. Did you have any trouble, without examining the mills from which you obtained this board, in finding from defendant's exhibit 7 which mills supplied the paper board here that gave the lower bacteria count as shown in the third right hand column?

A. No.

Q. Why?

A. I can't get the force of the question.

Q. Why were you able to pick out in defendant's exhibit 7—performing the test in here on these various kinds of paper board—the mills from which this respective board

came that had a low bacteria count, as you pointed out in the third column on the right hand column?

1294 A. Because they had a low count on bacteria in the board.

Q. That indicated, or proved, what?

A. That indicated that they practiced steps to keep bacteria down, keeping contamination out and preventing bacterial growth.

Q. Could you do that from examining the board in this test here?

A. I think so.

Q. Mr. Schaefer asked you why it was in the November, 1937 article, which is plaintiff's exhibit 62, that you were of the opinion now that 170 degrees F. paraffining at 20 seconds immersion would be sufficient, and in 1937 at the meeting of milk sanitarians in Louisville you reported that when the board is sterile and when the containers are handled and packed and transported so that they will not become contaminated, and the containers are paraffined to 185 degrees for 30 seconds or longer, that containers will be fully as safe as any container can be. He asked you why you have that difference of opinion now than what you announced in this report in 1937.

A. May I read one sentence to bring it out?

Q. Give your answer.

1295 A. This paper is a report on the progress, which means that we had a limited amount of information, and we based our conclusions on what we had.

Q. How many weeks or months of observation and experiments did you have at that time, in 1937?

A. Running over about six or seven months.

Q. Does your experience since that time justify the opinion that you gave Mr. Schaefer concerning 170 degrees F.

A. Yes.

Q. Did you at any time when the machine was at the University operate the machine at a temperature of 180 degrees F. in the ordinary course of conducting the dairy?

A. Yes.

Q. Did you operate the machine at 170 degrees F. temperature in the paraffin bath?

A. Yes.

Q. Also?

A. Yes.

Q. Did you find any difference in the sanitary quality of the paper container turned out between the two temperatures?

A. No.

Q. Will you look at plaintiff's exhibit 51, concerning which you were cross-examined about; can you tell 1296 from the results of the tests which you ran and which are explained by plaintiff's exhibit 51 here, whether the paraffining had any sterilizing effect upon this board?

A. Yes.

Q. What does it show?

A. It shows that the paraffining either destroys all of the bacteria put on the plate or once in awhile some may go through.

Q. What does it show with regard to the quality of the board so far as sterility is concerned?

A. To all purposes, the paraffined strips would be considered sterile.

Q. In cross-examination, Mr. Schaefer asked you concerning this matter of spots which might be called slime spots, how they happened, and you replied that they happened by the "laws of probability". What did you mean by that?

A. I am sorry.

Q. Do you remember that, Doctor?

A. I remember the discussion on that. I don't know how to answer—the probability.

Q. You answered you would explain it as a happening by the laws of probability, that is what you said.

Mr. Schaefer: I submit the record won't show that.

1297 Mr. Gariepy: Q. What did you say, Doctor?

The Master: Do you remember, or don't you?

The Witness: No.

The Master: He doesn't remember. Go ahead.

The Witness: Just what do you refer to?

Mr. Gariepy: That is all.

The Master: Is there any recross examination?

Mr. Schaefer: Yes.

The Master: Proceed.

Recross Examination by Mr. Schaefer.

Q. Doctor, the brownish patches to which I referred on cross-examination manifested themselves as brownish patches in the paper under the paraffin, did they not?

A. It was in the paper usually on the bottom.

Q. Under the paraffin?

A. Yes.

Q. Is that right?

A. Under the paraffin, yes.

Q. And they were paper defects, is that right?

A. I call them paper defects.

Q. They appeared to you to have been caused by some hydrolitic change in the pulp, is that correct?

A. Yes.

Q. Were you ever at the Gardner-Richardson Plant?

A. Yes.

1298 Q. In your redirect examination a moment ago you looked at defendant's exhibit 7 and you stated that you were able to identify the four last counts, number 67 to 70 on that exhibit, as being counts on paper coming from the Cherry River Mill?

A. Yes.

Q. That paper was shipped to you from the Cherry River Mill, was it not?

A. Yes.

Q. You kept a record then of the samples of paper used in that experiment, did you not?

A. Yes.

Q. As to the source of the samples?

A. I received bundles of paper, yes.

Q. You kept a record of the source of each one of those samples?

A. Yes.

Q. So that you knew, from the sample?

A. Yes.

Q. Regardless of the count, that that paper came from the Cherry River Mill?

A. Yes, sir.

Q. Is that correct?

A. That is correct.

Q. You were not able to ascertain that it came from the Cherry River Mill simply because it was a count of
1299 zero, were you?

A. No. I can show you the notes, I have them with me.

Q. You did not determine it simply by looking to see that the count was zero?

A. I know because I was interested in it, I know that

those came—not only those, but there were some higher ones in it, too.

Q. Between 1937 and 1939 has there been any change in the bacteriacidal effect of the application of paraffin at a given temperature and for a given period of time upon a piece of paper board?

A. No.

Q. Referring to plaintiff's exhibit 46, which was the self purification experiment, how much skim milk did you add to your bacterial suspension?

A. One per cent.

Q. One per cent?

A. Yes.

Q. In your opinion, does that one per cent and just that one per cent afford a bacteria in that suspension for production of a nutrition comparable to that which bacteria from a nasal secretion would receive?

A. I did not determine that.

Q. You did not determine that?

1300 A. No, sir.

Mr. Schaefer: That is all.

The Master: Have you any further redirect examination?

Mr. Gariepy: Just a few questions.

The Master: Proceed.

Redirect Examination by Mr. Gariepy.

Q. Nasal secretion is not usually found about dairies, is it, Doctor?

A. No, sir.

Q. Or in glass bottles or paper bottles?

A. No. We try to keep it out.

Q. Wouldn't the count on defendant's exhibit 7, which Mr. Schaefer asked you about, be determinative to you as to where the paper board came from, or the source of the board?

A. It would, in one respect—not so much as to the name of the mill, but when paper—

Q. Whether it would be fit to be used for milk containers or not?

A. Yes, sir.

Q. It would indicate that?

A. Yes.

Mr. Gariepy: That is all.

The Master: Are you through with this witness now?

1301 Mr. Gariepy: Yes.

The Master: Doctor, you are excused.

(Witness excused.)

Mr. Gariepy: I offer in evidence plaintiff's exhibit 61, which is the United States Public Health Service suggestion and recommendation, that counsel has cross-examined the witness about.

Mr. Schaefer: I have no objection to its receipt.

The Master: It may be received.

(Said pamphlet so offered and received in evidence was marked "PLAINTIFF'S EXHIBIT NO. 61", and is attached hereto and made a part hereof.)

(Discussion off the record.)

The Master: We will continue on Monday at 10:00 o'clock.

(Whereupon the further hearing in the above entitled cause was continued to Monday, September 25, 1939, at 10:00 o'clock, a. m.)

1302 • • (Caption) • •

Monday, September 25, 1939,
10:00 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy,
Mr. Rall,
Mr. Schaefer,
Mr. Horan.

1303 Mr. Rall: Before we start with the next witness, as a substitute for Plaintiff's Exhibit 61, consisting of three pages, which were a typewritten copy, we should like to substitute the original letter and the original enclosure, also to be known as Plaintiff's Exhibit 61, and withdraw the previous copy.

The Master: That may be done.

(The original copy of Plaintiff's Exhibit 61, referred to, consisting of three sheets, was thereupon substituted and also marked Plaintiff's Exhibit 61.)

Mr. Rall: Will you mark this Plaintiff's Exhibit 63?

(The document was marked by the reporter as requested.)

The Master: What case are you referring to, Fieldcrest, or your plaintiff, Mr. Rall?

Mr. Rall: I am talking about the Fieldcrest case now, your Honor. Now, if the Master please, may Plaintiff's Exhibit 63 that has been marked this morning be substituted for the tissue copy of Plaintiff's Exhibit 63 which was received the other day, and withdraw this Exhibit 63?

The Master: Yes.

(The substitution was thereupon made of Plaintiff's Exhibit 63, as referred to above.)

1304 Mr. Rall: Mr. Reporter, will you mark this photostat Plaintiff's Exhibit 62?

(The document was marked by the reporter as requested.)

Mr. Rall: This is a photostat of the address by Dr. Prucha at the 1937 Louisville convention of the International Association of Milk Sanitarians, a reprint from the Journal of Milk Technology, the title being "Sanitary Aspects of Paper Milk Containers," and being a substitute for Plaintiff's Exhibit 62 referred to by Dr. Prucha the other day, and which we have now had photostated.

The Master: That may be substituted.

(The substitution of Plaintiff's Exhibit 62 was thereupon made.)

Mr. Rall: On the question of jurisdictional amount, the Fieldcrest Dairies has decided, after examining the authorities, that it would be unsafe to rely on a stipulation, but we should state for the record that this testimony is necessary for that reason and not because counsel for the city were in any respect unreasonable in refusing to make an agreement.

1305 S. E. DEAN, JR., called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, please.

A. S. E. Dean, Jr.

Q. And your address.

A. 20 North Wacker Drive.

Q. Chicago?

A. Chicago, Illinois.

Q. What is your business?

A. Milk.

Q. Are you connected with Fieldcrest Dairies, Inc., the plaintiff?

A. Yes.

Q. In what capacity?

A. President.

Q. And as president of Fieldcrest Dairies have you knowledge concerning the assets of the plaintiff corporation with regard to the sale and distribution of milk?

A. I have.

Q. How many Ex-Cell-O machines does Fieldcrest Dairies at this time have, that are leased from the Ex-Cell-O Corporation, for the purpose of packaging and selling Pure-Pak containers?

A. Two.

Q. How many are in operation at this time and 1306 being used daily at the plant?

A. One.

Q. What is being done with the other machine?

A. The second machine was installed in order to take care of the prospective business we had in the city of Chicago when and if we received a permit to operate.

Q. And what was the price paid for the lease of that second machine, which is now dormant?

A. \$12,000.

Q. And that machine is still at the Chemung plant, or where it is located?

A. At Chemung, Illinois.

Q. Is the other machine being used daily for supplying the suburban demand at this time, of milk in Pure-Pak containers?

A. We are operating the one machine at about forty to fifty per cent capacity.

The Master: What do you mean by suburban demand?

Mr. Garipey: The suburbs of Chicago.

Q. What is the capacity with regard to quarts per hour that the idle machine now can be used during an eight-hour shift in the dairy, eight hours running?

A. Approximately 7,500 cartons per eight-hour day.

Q. Do you know whether Fieldcrest Dairies, Inc., has assurances at this time and whether they had them previous to the filing of this suit concerning the sale of milk 1307 in Pure-Pak containers in the city of Chicago, if such permission was obtained from the Board of Health?

A. Yes. We interviewed a number of prospective customers and we had assurances that we would receive a sufficient amount of business to justify our placing the second machine in our Chemung plant.

Q. And the second machine was secured and purchased after those conferences and after receiving those assurances?

A. That is correct.

Q. And how much were those assurances of the sale of milk, in the number of quarts per day, in the city of Chicago, that you received?

A. Will you repeat that, please?

Q. How much in quantity, I am referring to, in the matter of sales of milk did you receive assurances that you could sell in the city of Chicago, just previous to the purchase of the second Ex-Cell-O machine?

A. We estimated we could sell at least the output of this one machine we have on hand.

Q. Which is how many thousand per day?

A. Approximately seventeen to eighteen thousand.

1308 Q. Did you have these assurances during the year of 1938?

A. Yes.

Q. And during the past ten months or eleven months, Mr. Dean, what in your opinion has been the loss to Fieldcrest Dairies by reason of the fact you have not been able to use this machine and to sell milk on these assurances and commitments in the city of Chicago?

A. To the best of my belief, we could have made not less than \$10,000.

The Master: Q. Do you mean profit?

A. Profit on that operation, that is right.

Q. Over what period?

A. He asked me about the first ten months of this year.

Mr. Garipey: Q. Since December, 1938, up to the present time.

A. Yes.

Q. How many trucks does the Fieldcrest Dairies have and use at this time, with regard to the sale of single service containers in these Pure-Pak bottles?

A. We are using nine at the present time.

Q. Have you any trucks idle?

A. Yes.

Q. How many?

A. Fifteen.

Q. And what was the cost of those trucks and when were they purchased?

A. The trucks cost approximately \$2100 apiece. 1309 Twelve of them were purchased in early 1938. Twelve of them were purchased the early part of 1939.

Q. Have any of those fifteen trucks—are there fifteen idle?

A. That is correct.

Q. Have any of those fifteen trucks been used since purchased for the distribution of milk in Pure-Pak containers?

A. No.

Q. Or in the city of Chicago for the sale of milk?

A. No.

Q. Were those trucks purchased at or about the time that you secured the second machine from the Ex-Cell-O Corporation, that you testified to?

A. Approximately at the same time, to the best of my recollection.

Q. Have you an opinion as to the loss to Fieldcrest Dairies, Inc. on account of the non-use of these trucks, since their purchase in 1938, due to the fact you are unable to use them on the sale of milk in single service containers, Pure-Pak containers, in the city?

A. Well, you can charge off only the depreciation, which would amount to approximately \$3500. Of course, the fact the trucks set idle for an extended period of time 1310 necessitates an overhauling before you can begin to operate them again, and I expect we will have some added expense on top of that.

Q. What would you say or what is your opinion of the value of doing business in the city of Chicago at this time to the Fieldcrest Dairies, per year, conservatively estimated, that is, from selling milk in single service Pure-Pak containers?

A. I believe that the Fieldcrest Dairies' operation, based on very conservative estimates of our sales, would be worth at least \$10,000 per year to us, net profit.

Q. On 17,500 quarts of milk what would be a reasonable return, a conservative return per quart, at your dairy, in the way of profit?

A. A very efficiently operated dairy, under today's conditions, would net, in my judgment, between one and one-half and two per cent on their dollar sales. Reducing this to a quart basis, in compliance with your question,

would put the figures out into the third or fourth decimal point.

Q. Reducing the 17,500 quarts to this basis of so much a quart, how much would you gain on such sales?

A. It would be between thirty and thirty-five dollars per day net profit.

Q. How long have you been in the milk business, 1311 Mr. Dean?

A. We were incorporated in 1933, as the Dean Milk Company. Fieldcrest Dairies was incorporated in 1938.

Q. Under what state was the Fieldcrest Dairies incorporated?

A. The state of Michigan.

Mr. Gariepy: Mark this Plaintiff's Exhibit 64 for identification, please.

(The document referred to, being a charter of the Fieldcrest Dairies from the State of Michigan, was thereupon marked Plaintiff's Exhibit 64 for identification.)

Mr. Gariepy: Q. I show you Plaintiff's Exhibit No. 64 for identification, which is a photostatic copy of a Michigan incorporation from the Michigan Corporation and Securities Commission. Is that a photostatic copy of the charter that you obtained in 1937?

A. It is.

The Master: For the Fieldcrest Dairies?

Mr. Gariepy: Q. For the Fieldcrest Dairies, Inc.?

A. Yes, sir.

Q. And is the corporation still in good standing with the Corporation Department of the State of Michigan?

A. That is correct.

The Master: Q. Has it been admitted to do business 1312 in Illinois?

A. Yes.

Mr. Gariepy: I have got that just here.

The Master: I see.

Mr. Gariepy: I offer that in evidence as Plaintiff's Exhibit No. 64.

Mr. Schaefer: No objection.

The Master: It may be received.

(Said photostatic copy of charter of Fieldcrest Dairies in the State of Michigan so offered and received in evidence was marked PLAINTIFF'S EXHIBIT 64 and is attached hereto and made a part hereof.)

Mr. Gariepy: Will you mark this, Mr. Reporter, Plaintiff's Exhibit 65 for identification?

(The document referred to, being certificate of compliance, No. 2631, of the State of Illinois, was thereupon marked Plaintiff's Exhibit 65 for identification.)

Mr. Gariepy: Q. Mr. Dean, I show you Exhibit No. 65, which purports to be a certificate of compliance, Certificate No. 2631, from the Corporation Department of the 1313 State of Illinois, for doing business in this state, issued to Fieldcrest Dairies. Did you receive that on or about the date it bears, November 29, 1937?

A. That is right.

Q. And is the certificate still in full force with regard to your permission to do business in this state?

A. It is.

Q. Fieldcrest Dairies?

A. It is.

Q. Is Fieldcrest Dairies a separate corporation from Dean Milk Company, Inc.?

A. It is.

Mr. Gariepy: I offer it in evidence as Plaintiff's Exhibit 65.

Mr. Schaefer: No objection.

The Master: It may be received.

(Said document, being photostatic copy of Certificate of Compliance No. 2631 from the Corporation Department of the State of Illinois, issued to the Fieldcrest Dairies, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 65 and is attached hereto and made a part hereof.)

Mr. Gariepy: Q. And the sales that you have testified to, on which you based your opinion and gave your judgment, are with regard to sales by Fieldcrest Dairies, Inc.?

A. That is right.

1314 Q. You did not answer my previous question, Mr. Dean. How long have you been connected with the milk industry yourself?

A. Since October, 1930.

Q. And in what capacity? What experience have you had in the milk industry that you use in giving these figures and this testimony this morning?

A. I worked in the plants, various milk plants, until the latter part of 1933. Subsequent to that time I was doing office work and sales work in connection with evaporated and fresh milk.

Q. Do your duties have anything to do with the purchase of supplies and checking sales?

A. Yes.

Q. And the matter of the field where you operate and the extent of your sales and things like that, are you acquainted with those too?

A. Yes.

Q. Do those come under your jurisdiction?

A. Yes, they do.

Q. They are a part of your duties?

A. They are.

Q. What relation has Dean Milk Company to Fieldcrest Dairies, Inc., the plaintiff?

A. In 1935, members of the organization of the 1315 Dean Milk Company became interested in the distribution of milk, and milk products in single service milk containers. In January, as the Dean Milk Company, we applied for a permit—

The Master: Q. January what year?

A. 1936. (Continuing.) —we applied for a permit from the Chicago Board of Health to use single service containers in the Chicago market. At this same time the Dean Milk Company was distributing, through the grocery stores of the city of Chicago, an evaporated milk sold under the trade name of Dean's Evaporated Milk.

It was at first considered a poor move to sell both fresh milk and evaporated milk under the same trade name, because there might be a confusion in the consumer's mind as to whether our advertising referred to the fresh milk or evaporated milk. We decided it would be a poor policy, and in accordance with this we incorporated the Fieldcrest Dairies, intending at the time to sell the milk under the trade name of Fieldcrest.

Further discussion of this entire problem with advertising men and others convinced us that selling both products under the same trade name would be beneficial to each 1316 product, rather than detrimental. That is why we sell the fresh milk and the evaporated milk both under the trade name of Dean. That is why, Master, you see Dean's name on this box.

Q. You sell them both under the name of Dean?

A. Yes.

Q. Then what is there left for Fieldcrest?

A. The Fieldcrest Dairies distribute Dean's milk.

Q. Fieldcrest is merely a distributor?

A. They are the whole operation. We can put any trade name we want to on any product.

Q. You work under both names, is that it?

A. We do not advertise the name of Fieldcrest Dairies. We advertise the words "Dean's Milk."

Mr. Gariepy: Q. They are two separate corporations, with two separate sets of offices?

A. That is correct.

Mr. Gariepy: That is all, Mr. Dean.

The Master: Q. Fieldcrest is the one that is trying to distribute these single service containers?

A. That is correct.

Q. Is Dean trying to do that too?

A. No. The Dean Milk Company is interested only in evaporated milk packed in small 14½ ounce size.

Mr. Gariepy: Q. This testimony you gave concerning the single service containers and the investment re-1317 lates to Fieldcrest Dairies only?

A. That is right.

The Master: Q. The Dean Company also sells fresh milk?

A. No, the Dean Milk Company sells no fresh milk. The Fieldcrest Dairies sells fresh milk. The Fieldcrest Dairies sells Dean's brand. We might call it Poppy brand or any other name. We chose to call it Dean's brand. Fieldcrest Dairies sells Dean's brand of milk.

Mr. Gariepy: That is all.

The Master: Any cross?

Mr. Schaefer: No cross-examination.

The Master: All right.

(Witness excused.)

Mr. Gariepy: Dr. White, will you take the stand, please.

JOHN L. WHITE, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. Will you state your name?

A. John L. White.

1318 Q. And your address?

A. 5415 South Carpenter street, Chicago.

Q. And your business, Doctor?

A. I am a bacteriologist.

Q. Connected with whom?

A. The Chicago Board of Health.

Q. How long have you been such?

A. I have been associated with the Chicago Board of Health in various capacities since 1910.

The Master: Q. And still are?

A. Yes.

Mr. Gariepy: Q. How long have you been bacteriologist for the Chicago Board of Health?

A. I was senior bacteriologist starting the year of 1912; to approximately the year 1923; principal bacteriologist from 1923 to 1927; assistant director of laboratories and research from 1927 to 1932, and chief of the laboratories from 1932 to the present date.

Q. And as chief of the laboratories from 1932 to the present time, what are your duties with regard to the matter of checking the bacteria content with respect to containers used in the city of Chicago for the sale of fresh fluid milk?

A. As chief of the bureau of laboratories, Department of Health, I have general supervision and administration duties in connection with the activities of the laboratory. Now then, in the checking of bacterial milk counts my duties are of a general nature. I do not personally conduct this work.

Q. Who does?

A. The present bacteriologist who is making the routine counts of milk in the laboratories is Robert Beers.

Q. Do you have anything to do with the checking of the containers used in the city of Chicago for the sale of milk so as to ascertain the bacterial condition of the same?

A. In a supervisory capacity and administrative capacity only.

Q. Have you since 1933 to 1937, in your capacity as bacteriologist, had occasion to visit any of the paper mills that are making paper containers for the sale of liquids, such as chocolate milk, Coca-Cola, ice cream, or other liquids that are sold from soda fountains and drug stores in the city of Chicago, in paper containers?

A. Would you repeat that whole question, please?

Mr. Gariepy: Read it to him.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. I have not.

Mr. Gariepy: Q. The same question with regard 1320 from 1932 up to the present time, 1939. Does that same answer hold?

A. I have not visited any paper mills.

Q. What have you done in your capacity as bacteriologist during the past seven years with regard to any examination of these paper containers that I have just described in my former question, in order to ascertain their bacterial content?

Mr. Schaefer: That is objected to, if the Master please. In the absence of a showing—if you want me to amplify the objection—in the absence of a showing that the products enumerated in the question are of the same nature and similar hazards would be involved in their distribution, the question is immaterial. No such showing has been made.

The Master: Read the question.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

Mr. Schaefer: I might say further that this entire matter has been covered by stipulation.

Mr. Gariepy: I would like Mr. Rall to answer that. We discussed it this morning, concerning the extent of our stipulation, which I have here.

Mr. Rall: The stipulation did not apply to liquid 1321 milk.

The Master: I don't hear you.

Mr. Rall: The stipulation does not cover the subject of liquid milk. I think Mr. Schaefer's point is well taken as to anything other than liquid milk.

Mr. Gariepy: The stipulation that is in the record at this time is that—

The Master: That is Exhibit what, or is it an exhibit?

Mr. Gariepy: It is not an exhibit. It was read into the record.

The Master: I see.

Mr. Gariepy: The stipulation in this record at this time is that ice cream, butter, lard, cottage cheese and other kinds of cheese, oysters, pickles, soft drinks and liquid coffee are sold daily in the city of Chicago, at retail, in paraffined paper cartons made of virgin spruce pulp, that ice cream is sold daily in the city of Chicago by manufacturers of ice cream to retailers of ice cream in metal cans with a thin paraffined paper liner between

the ice cream and the metal container, that thin. paraffined paper is permitted by the Board of Health of the City of Chicago to be placed across the top of metal milk cans underneath the metal cover of such cans, that paraffined drinking cups and paraffined paper straws 1322 are used daily in the city of Chicago, and that paraffined paper liners for dishes in which ice cream is served are also used daily in the city of Chicago, that in none of these cases is any objection made by the Board of Health of the City of Chicago, nor are any tests conducted by it to determine the sanitary quality of the paper so used.

You can see that nothing in regard to liquid milk is stated.

The Master: Let us assume all of these are within the same category you contend; would the fact that they just came to the conclusion that they ought to require such inspections make any difference?

Mr. Gariepy: I think it is very significant.

The Master: They may have decided that milk is something that should be so inspected or should be given a sort of inspection of the containers and it may be that they will request such inspection in the others also.

Mr. Gariepy: I think we have to take the facts, Master, as they are today. What they may do in the future is an entirely different thing. The ordinance may be changed or something. We don't know.

The Master: The fact that they may or may not 1323 have required it on other things is not necessarily determinative on the conclusion that there should be such inspection of milk.

Mr. Gariepy: It is significant with regard to the attitude of the Board of Health toward the single service container. If these other milk products are permitted to be sold by and with the consent of the Board of Health without any inspection and without any control concerning bacteria, why should the Board of Health become unduly conscious about it just about the time that plaintiff's application comes in for using this. There must be some reason for it.

The Master: They say there is, and if they have been negligent in the other matter that does not necessarily mean that they should be negligent in this matter.

Mr. Gariepy: We don't charge them with negligence. We charge them with failing to enforce and permitting

these other containers to be sold containing these different liquids.

The Master: While I am inclined to agree with Mr. Schaefer at this time, that the question has no particular relevancy on the pertinency of the question before the court now, I will let the witness answer this question.

1324 Mr. Gariepy: Read the last question.

The Master: The question is: What have you done in your capacity as bacteriologist during the past seven years with regard to an examination of these paper containers that I have just described in my former question, in order to ascertain their bacterial content?

The Witness: A. These paper containers refer to what content?

Mr. Gariepy: Bacteria.

The Witness: No, I mean the ingredients in the paper.

The Master: For the sale of liquids such as chocolate milk, Coca-Cola, ice cream, and other liquids that are sold. What is it? Pickles?

Mr. Gariepy: Pickles, oysters, cheese.

The Master: That he enumerated.

The Witness: A. I don't think that we have made any bacterial examination of such kinds.

Mr. Gariepy: Q. Have you or anybody else in the Board of Health during the past ten years visited the mills in which those containers are made, in order to inspect conditions in those mills where such containers are manufactured?

A. I have not, but as to whether anybody else has, I cannot answer. I don't know.

1325 Q. You don't know?

A. I don't know.

Q. Do you know whether or not you can purchase milk in the city of Chicago today in paper containers, to be carried out to your office or to be taken home, from places that dispense milk in glass bottles?

Mr. Schaefer: That is objected to.

The Master: Read the question.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Master: What is your objection, Mr. Schaefer?

Mr. Schaefer: If such a practice exists, if it is possible, it is a violation of the ordinance of the city and of the regulations themselves.

The Master: And what is your answer?

Mr. Gariepy: My answer is that if the ordinance is to be enforced it must be enforced uniformly. If they have a rule and regulation in the Board of Health and that rule and regulation is disregarded and people are permitted to carry out milk in paper containers in the city of Chicago today, then the ordinance has lost all its force and effect, by reason of the fact it is not applied uniformly, and there is a discrimination in that case.

The Master: Read the question again.

1326 (Mr. Gariepy's question was again read by the reporter as above recorded.)

The Master: I will sustain the objection.

Mr. Gariepy: Q. Do you, Dr. White, have anything to do with the matter of the approval of the containers that are used for the sale of milk in restaurants and drug stores?

A. That is not a function of the laboratory. I do not have anything to do with that.

Q. Dr. White, do you make any examination of the containers that are used for the sale of fresh fluid milk from restaurants in the city of Chicago?

A. We do make examination of containers in which fluid milk is sold. Now, where those containers are obtained, that is, where the containers may be sold, I do not have any knowledge of that. I presume they may come from restaurants at times.

Q. What examination do you make of said containers?

A. We make bacteriological examinations of bottles, milk bottles.

Q. And those bacteriological examinations, do they consist of rinse tests?

A. What do you understand by the rinse test?

Q. What do you understand by the rinse test, as a bacteriologist, Doctor?

A. Well, the rinse test that we use, and which I
1327 presume you have in mind, is the placing of sterile water in a supposed sterile container, rinsing the bottle thoroughly with the water, and then making a bacterial count on the water.

Q. Right.

A. Yes.

Q. Is that the test you perform?

A. Yes, we do make such tests on milk bottles.

Q. Do you make any other tests on milk bottles, other than this rinse test you have just described?

A. No, I don't think we make any other.

Q. Do you make rinse tests on these other paper containers that are used in the city of Chicago for the sale of milk products, such as cheese and butter?

Mr. Schaefer: That is objected to. That is covered by the stipulation.

Mr. Gariepy: Not whether he made an inspection.

The Master: I will let him answer the question.

The Witness: The question is—

Mr. Gariepy: Read the question.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: - A. No.

The Master: Q. When you say these other paper containers, do I understand you to say that the containers in which milk is sold from restaurants are made out of paper?

A. No. I infer there it is a bottle container.

Q. You mean a glass bottle container?

A. Yes.

Q. One is a paper bottle and the other is a glass bottle?

A. That is right.

The Master: Then you had perhaps better reframe your question, Mr. Gariepy. You say "these other."

Mr. Gariepy: Q. Do you make any other tests, other than the rinse tests, on glass containers, Doctor?

A. No, we do not.

Q. Do you make any examination of the glass containers that are used in the city of Chicago, by going outside of the city of Chicago to ascertain where they are made, or anything about them, or the methods used in making them?

The Master: That is glass containers?

Mr. Gariepy: Yes.

The Witness: A. Let me get this question. Do you ask whether we make any inspection or examination of glass bottles manufactured outside of the city of Chicago?

Mr. Gariepy: Q. That is right.

A. I do not know the source of the manufacturing of these bottles, but we do make an examination of all bottles submitted to the laboratories by the dairy products section of the Health Department.

Q. Do you know where they obtain those bottles?

A. They obtain them, as I understand, in their process

of inspection of milk plants, dairies and so forth, in the city.

Q. But as far as going outside of the city or going to the glass mills or anything of that sort is concerned, you do nothing of that?

A. No, I do not.

Q. Does anybody in the department do any of that?

A. That I cannot answer. I do not know.

Q. Do you perform any bacteriological tests on paper containers that are used in the city of Chicago daily for the sale of these products that I described as oysters and Coca-Cola and liquid drinks, in drug store?

Mr. Schaefer: I submit that has been covered by stipulation.

The Master: I will let him answer.

Mr. Schaefer: The purpose of stipulating and working it out, it seems to me, is entirely lost if we spend the morning doing this.

The Master: Let him answer.

The Witness: A. I do not recall any such con-1330 containers being examined in the city health department.

Mr. Gariepy: Q. Have you ever seen any such containers as these four paper containers that I exhibit to you now, that are filled with milk? Lift them, Doctor. Open the cap of each one of them, will you?

Mr. Schaefer: That is objected to, if the Master please. Here we are on an excursion again.

Mr. Gariepy: No, we are not on an excursion. We are inquiring into the facts in the city of Chicago today concerning the selling of milk in paper containers.

Mr. Schaefer: The ordinance prohibits the sale of milk in that way. It cannot be contradicted.

The Master: I sustained an objection to a question in which you asked whether he knew that milk was purchased in paper containers in Chicago. What is your present question. Is it whether they are inspecting such containers?

Mr. Gariepy: Read my question, Mr. Reporter, please. (Mr. Gariepy's last question was read by the reporter as above recorded.)

The Master: I sustain the objection to the question as immaterial.

Mr. Gariepy: Q. Doctor White, do you know whether

milk, Grade A milk, can be purchased in the city of 1331 Chicago today in such containers as are exhibited before you now?

Mr. Schaefer: That is objected to.

The Master: I sustain the objection.

Mr. Gariepy: Q. Have you, in your experience, Doctor, in the Board of Health, as a bacteriologist, had occasion to make any tests upon the bacterial content of these containers, the paper in them?

Mr. Schaefer: That has been covered by stipulation.

The Master: Are you objecting to it?

Mr. Schaefer: I am objecting, yes.

The Master: I will sustain the objection.

Mr. Gariepy: If the Master please, that you may get the significance of this, may I read Section 3094 of the Mayor Kelly milk ordinance involved in this case, which reads as follows:—

The Master: Is that the law in force now?

Mr. Gariepy: In force today.

The Master: All right.

Mr. Gariepy: "Any milk or milk products sold in quantities of less than one gallon shall be delivered in standard milk bottles, provided, however, that nothing herein contained shall be construed to prohibit hotels, 1332 soda fountains, restaurants and similar establishments from dispensing milk or milk products in sanitary dispensers approved by the Board of Health."

That is the end of Section 3094.

The Master: Is there any contention that paper containers for milk to be sold from soda fountains and so forth have been approved by the Board of Health?

Mr. Gariepy: If they have not been approved by the Board of Health formally, they have been approved by the Board of Health permitting the sale of those to constantly go on daily. They cannot wink at the ordinance in one case and not in the other.

The Master: There is no evidence of that, any more than is suggested in Mr. Schaefer's statement here a little while ago off the record, about the government permitting the sale of liquor during prohibition just because a great many people sold it.

Mr. Gariepy: I don't think that has any analogy at all, Master.

The Master: Why not?

Mr. Gariepy: We are trying to prove that the City of Chicago, through its Board of Health, permits these to be sold and they are being sold daily in these containers.

1333 The Master: You have not proved it yet. You have asked him whether he has examined these containers and so on.

Mr. Gariepy: Q. And your answer has been what, Doctor? Has it been no?

A. I have not answered it.

The Master: He has not answered the question. I will sustain the objection.

Mr. Gariepy: Q. Do you know whether the Board of Health of the City of Chicago has approved the sale of milk in paper containers, such as are exhibited before you here now?

Mr. Schaefer: That is objected to.

The Master: Out of drug stores and soda fountains?

Mr. Gariepy: I will read the ordinance, so there is no question about it.

Q. The ordinance of the City of Chicago, Dr. White, if you do not know, provides that the Board of Health of the City of Chicago may approve of the sale of fresh fluid milk from hotels, soda fountains, restaurants and similar establishments. Do you know whether they have approved the sale of milk in these types of containers that are exhibited here before you now?

1334 The Master: Being paper containers.

Mr. Gariepy: Q. Being four paper containers with the lids off, filled with milk.

The Master: I will let him answer.

Mr. Schaefer: If the Master please, there is a way to prove an official act of the Board of Health.

The Master: The only question is whether he knows.

Mr. Schaefer: That, I submit, is immaterial, whether he knows or not. In any event, the question is objectionable.

The Master: I will let him answer, if he knows.

The Witness: A. I don't know whether the Board of Health has approved the sale of milk in these containers.

Mr. Gariepy: Q. Do you know of any containers that the Board of Health has approved the sale of milk in, from restaurants and hotels and similar establishments?

Mr. Schaefer: That is objected to for the same reason.

The Master: I will let him answer, if he knows.

The Witness: A. I don't know of any action taken by the Board of Health in this matter.

Mr. Gariepy: Q. What do you mean, in this matter?

A. The sale of milk in containers from restaurants and hotels.

Q. Do you know whether there is any bacterial 1335 test made on any paper containers in the city of Chicago, ice cream containers?

Mr. Schaefer: That is objected to, if the Master please. The question again has been asked and answered and covered by stipulation.

The Master: I will let him answer.

The Witness: What was the question?

Mr. Gariepy: Read it, please.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. I do not recall any tests made of paper containers.

Mr. Gariepy: Q. And if such tests were made, would you have knowledge of them, being chief of the bacteriological department?

A. I believe I would.

Mr. Gariepy: That is all, Doctor.

Mr. Schaefer: No cross-examination, Doctor.

The Master: That is all, thank you.

(Witness excused.)

1336 Mr. Gariepy: Mr. Bunta, be sworn, please.

ANDREW BUNTA, called as a witness on behalf of plaintiff, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. What is your name?

A. Andrew Bunta.

Q. Where do you live?

A. 4750 North Long avenue.

Q. Chicago?

A. Chicago, Illinois, right.

Q. What is your business?

A. I am a law clerk.

Q. Are you working in my office?

A. I am.

Q. Did you have occasion on Saturday to go about the loop and to purchase milk in paper containers, in the city of Chicago?

A. I did.

Q. And what stores, drug stores, did you go to to purchase milk in paper containers?

Mr. Schaefer: That is objected to, if the Master please. We are on the same line of interrogation now.

The Master: I will let him answer that question.

The Witness: A. I went to three drug stores.

Mr. Gariepy: Q. Name each one of them in order, Mr. Bunta.

1337 A. My first stop was at the Von Hermann drug store.

Q. Where is it?

A. Which is in the 111 West Washington street building.

Q. The next one?

A. Was in a Liggett drug store which is in the 33 North LaSalle street building.

Q. The next one.

A. My third one was in the Loop drug store, which is located in the 100 North LaSalle street building.

Q. Did you purchase some milk there in paper containers?

A. I did.

Q. Will you look at the paper containers that are exhibited before you on the table and pick out which ones you purchased and where you purchased them?

Mr. Schaefer: Just a moment. I move to strike the answer to the last question, did he purchase milk in these drug stores in paper containers.

The Master: Read the last question.

(The question referred to was read as follows: "Did you purchase some milk there in paper containers?")

The Master: And the answer was that he did?

Mr. Schaefer: Yes.

The Master: You move to strike it?

Mr. Schaefer: Yes.

The Master: On what ground?

1338 Mr. Schaefer: On the ground that if the milk was so purchased, it was sold in violation of the ordinance. It cannot have any bearing on any issues in this case.

The Master: I will let him answer. Go ahead.

The Witness: A. I did purchase milk in each one of the enumerated drug stores.

Mr. Gariepy: Q. Will you look at the large one here, which has the word "Liggett" written on it. Did you purchase the milk now contained in this container in the Liggett's drug store that you identified?

A. I did.

Q. Did you ask them for milk to take out?

A. I did.

Q. And they put it in this container and you took it out?

A. That is right.

Q. The second container here, which is a "Nestrite" container and also has the words "Personal Service" on it; where did you purchase that?

A. I purchased that in the Loop drug store.

Q. Which one?

A. Located in the 100 North LaSalle street building.

Q. What did you ask for when you purchased that?

A. I asked for milk in a paper container.

Q. And they gave this to you?

A. They did.

1339 Q. And the third one here?

A. I purchased that in the von Hermann drug store.

Q. With the lady's head on it?

A. Yes.

Q. Did you ask for milk there?

A. I did.

Q. Did you ask them in any particular way for it?

A. I asked for milk in a paper container.

Q. And they gave you this?

A. Yes.

Q. As a matter of fact they gave you the three here in the same way?

A. They did.

Q. And did you bring those three to my office with the caps on, these three loose caps?

A. I did.

The Master: These three, to describe them for the record, are in the shape of ordinary tumblers or glasses.

Mr. Gariepy: Glasses.

The Master: With a disk which forms a cover, on top?

Mr. Gariepy: Disk caps, with a tab for lifting them off and on, fitting the tops.

The Master: Yes.

Mr. Gariepy: Fitting neatly over the top and sinking in over the lip of each one of them.

Q. Are these in the same condition now, Mr. Bunta, as they were at the time you purchased them?

1340 A. They are.

Q. Except for the caps being loose?

A. That is right.

Q. How far were these places or these drug stores where you purchased these from the city hall?

Mr. Schaefer: That is objected to.

The Master: Objection sustained.

Mr. Gariepy: Q. How far were they from the Board of Health offices, now located at Austin avenue, upon the north side, where the old Criminal Courts used to be?

Mr. Schaefer: That is objected to.

The Master: No, I will reverse my ruling. I will let him answer both questions.

The Witness: Which one do you want me to answer?

Mr. Gariepy: Q. The first question was how far were the stores where you purchased these containers, that you just described in your testimony, from the city hall, where the Board of Health is located?

A. They are within a radius of three hundred feet.

Mr. Schaefer: The Board of Health offices are not located in the city hall. It doesn't make any difference, but it does not state a fact.

Mr. Gariepy: The Board of Health used to be located over there and they moved to Austin avenue on the 1341 north side.

Mr. Schaefer: That is objected to. They did not move to Austin avenue on the north side.

The Master: It does not make any difference. Go ahead.

Mr. Schaefer: The Board of Health is located at 54 West Hubbard street, if you want to put your question that way.

The Master: Didn't that use to be known as Austin avenue?

Mr. Schaefer: I don't know.

Mr. Gariepy: Q. Mr. Bunta, these were all purchased in the loop?

A. They were.

Q. And within a radius of three hundred feet from the city hall?

A. That is right.

Mr. Gariepy: Cross-examine.

Mr. Schaefer: No cross-examination.

The Master: That is all.

(Witness excused.)

Mr. Gariepy: Mr. King.

1342 BRUCE KING, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name?

A. Bruce King.

Q. Where do you live?

A. 231 North Water avenue, Chicago, Illinois.

Q. And your business or profession?

A. I am an attorney.

Q. Are you employed at my office?

A. I am.

Q. On Saturday, September 23, 1939, did you have occasion to purchase milk at the Stineway drug store in the Field Building, in the loop?

A. I did.

Q. I show you a container that bears the name "Stineway." Did you purchase that in that drug store?

A. I did.

Q. About what time of day?

A. About 2 o'clock in the afternoon.

Q. What was the occasion for purchasing this container of milk, with the words "Carry Out Service" on the outside?

A. I entered the drug store and asked for some milk, carry-out service, to be taken out.

The Master: Q. In a paper container?

A. In a paper container.

Mr. Gariepy: Q. And they gave you this here?

A. The clerk dispensed that from a glass bottle and put it in this particular container.

Q. And you took it to the office?

A. And I took it to the office.

Q. Is it in the same condition now as it was then, with the exception that the cap has been removed from the top?

A. It is.

Mr. Gariepy: That is all.

Mr. Schaefer: No cross-examination.

(Witness excused.)

Mr. Gariepy: I think for the record these containers that the witnesses have identified ought to be described, Master.

The Master: They have already been described.

Mr. Gariepy: The Stineway was not described. The Stineway container, that Mr. King referred to, contains on the side "Stineway Drug Stores, Carry-Out Service."

The other side has some writing on it which has no 1344 bearing here. The Liggett container has the words "Fountain Service" written below the word "Liggett's."

Mr. Schaefer: And it is colored blue.

Mr. Gariepy: And colored blue.

The Master: All right.

Mr. Gariepy: Mr. Faust, be sworn, please.

E. R. FAUST, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name.

A. E. R. Faust.

Q. Your address.

A. 230 North Michigan Boulevard.

Q. Your business and occupation?

A. Advertising.

Q. What type of advertising do you do, Mr. Faust?

A. Do you care to enlarge on that question?

Q. Is it commercial advertising or what is it?

A. Advertising agency.

Q. Did you have occasion, during the month of May, 1939, to ascertain the matter of where milk bottles are secured that are used in the city of Chicago?

A. I did.

Q. Did I give you the exact date, May 11th?

1345 A. May 9th, 10th, and 11th.

Q. And what did you do, Mr. Faust, first, on

May 10, 1939, in the city of Chicago, with regard to ascertaining the places where glass milk bottles are obtained and secured, as used in the city of Chicago?

A. On May 10th I visited the Illinois Central Railroad yards, at the loading dock, where rubbish from the city of Chicago is deposited before it is rehandled and put into railroad cars to be hauled outside of the city. Then I visited the Cook County Hospital, the Cook County Morgue, to see if I could find any bottles used there as temporary containers. Then I visited several—wait a minute. That is the first day.

Q. All right. The next day, what did you do?

A. The next day we visited these same spots.

The Master: Q. We?

A. I and a photographer visited these same spots, where we saw bottles deposited in piles of dirt in the Illinois Central yard, bottles loaded on a car full of rubbish in the yards, which we dislodged; bottles, empty bottles, in the Cook County morgue; and then we went to a junkyard at 643 O'Brien street, where we saw what I call pickers. They would be men with push carts, bringing in used milk bottles for storage in the junkyard at 643 O'Brien street. And then the photographer and I went to the city dump at 19th street and Lincoln street, where we saw bottles—make that a bottle—picked from a pile of rubbish by a man who was accustomed to stay there to pick bottles from the rubbish.

Mr. Schaefer: That is objected to.

The Master: Yes, that may be stricken.

Mr. Gariepy: All right.

Q. Just tell what you saw.

A. I saw him pick up a bottle from the rubbish pile.

The Master: Q. A milk bottle?

A. A milk bottle, yes, a pint bottle in that case. Then we went across the street, the east side of Lincoln street, where we saw a colored picker, who had a—

Mr. Schaefer: I object to the "colored picker," if the Master please.

The Witness: All right.

Mr. Gariepy: Q. What was he doing, that colored man?

A. He had a push cart loaded with waste paper and old metal. He had a gunnysack tied on the cart, filled with used quart bottles.

The Master: Q. Milk bottles?

A. Milk bottles. Then we went to a junk yard at 1347 2048 West Lake street, where we saw stacks of cases, empty cases of bottles, milk bottles. Let me see. That terminated that day's activities.

Mr. Gariepy: Q. What did you do the next day with regard to ascertaining the source of these glass bottles?

A. That was not the next day, Mr. Gariepy. That was a later date. July 11th, or thereabouts.

Q. 1939?

A. Yes.

Q. Where did you go that day?

A. On that day we went to the Milk Dealers Bottle Exchange—

The Master: Q. We?

A. I did alone. (Continuing.) —at Blue Island and Damen avenue. The first activity in the morning was to follow a White truck—that is the make of the truck—carry a stake body, bearing the sign "Milk Dealers Bottle Exchange." I followed this truck, which was loaded with empty crates, to a junkyard at the corner of Erie and Morgan streets, where the truck backed into a yard, threw off the empty crates and loaded again with the same type of crates filled with empty milk bottles.

Mr. Gariepy: Q. Where did that truck go from there?

1348 A. That truck then proceeded over the same route back to the Milk Dealers Bottle Exchange, and drove up the driveway of the Exchange, back into the loading dock, and began to throw off bottles.

Then the afternoon of the same day—no—just shortly after noon this same truck carrying filled bottles, filled cases, rather, of empty quart milk bottles, drove to the Polonia Dairy—the address slips my mind—where it unloaded its cases filled with empty bottles.

Then I left the truck at the dairy and went back to the Milk Bottle Exchange, where I saw an older make of White truck than the one I just left, carrying a stake body, bearing the sign "Chicago Dealers Milk Bottle Exchange." This truck traveled down Blue Island avenue, to a junkyard at the corner of Washburne avenue and Blue Island avenue, or near the corner. It is on Washburne, west of Blue Island. The truck was loaded with empty crates. The truck backed into the loading driveway of the junkyard, threw off its empty crates, filled up with crates filled with empty used milk bottles, and then went back to the

Milk Dealers Bottle Exchange, where it entered the driveway. The last I saw of it, it was behind another 1349 White truck filled with empty bottles, waiting in the driveway.

Q. Did you have occasion to take pictures of the activities of these trucks in the places that you visited on these three days?

A. I had occasion to take pictures—starting from the last day back—take pictures of the two trucks unloading and loading at the junkyards. I did not have a camera in the morning—the previous day or, rather, the previous day of activity, the photographer who was with me took pictures of the bottles we saw in the places where we found them and in some cases took pictures including me in the scene, showing me and the empty bottles.

Mr. Gariepy: Q. Mr. Reporter, mark this Exhibit 66. (The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 66 for identification.)

Mr. Gariepy: Q. I show you Exhibit No. 66. Is that the Milk Bottle Exchange building that is shown there and a milk truck or the crate-bottle truck that you referred to in your testimony?

A. That is right. That is the last truck described.

Q. And does that picture correctly and accurately portray the conditions as you observed them with the naked eye at the time the picture was taken?

1350 A. It does.

Q. When was that?

A. July 11th.

The Master: Q. What year?

A. This year. I might check that date, Mr. Gariepy. No, correction. June 29th was the last day's activity.

Mr. Gariepy: Mark this the next number, please, Mr. Reporter.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 67 for identification.)

Mr. Gariepy: Q. Look at Exhibit 67 that the Master is handing you now. What date was that picture taken and is that a picture of the truck you referred to in your testimony?

A. That is taken the same day, June 29th. That picture shows the truck which is shown in the other picture, traveling towards the junkyard at Washburne and Blue Island.

Mr. Gariepy: Mark this picture No. 68, Mr. Reporter. (The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 68 for identification.)

Mr. Gariepy: Q. I hand you Exhibit 68. What does that show and when was that taken?

1351 A. That shows the—that was taken on June 29th and shows the Milk Dealers Bottle Exchange truck parked in the loading driveway of the junkyard at Washburne and Blue Island avenue. The truck is loaded in that case with empty crates.

Q. What causes you to say it is a Milk Bottle Exchange truck?

A. The sign is visible on the Ford panel of that truck. It is blurred in that enlargement, but under magnification it shows "Milk Dealers Bottle Exchange." In fact, under close scrutiny it shows that legend.

Mr. Gariepy: Will you mark this Exhibit 69, please? (The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 69 for identification.)

Mr. Gariepy: Q. Will you look at Exhibit 69 and tell me what that shows?

A. That shows the office of the junkyard.

Q. At what address?

A. At Washburne and Blue Island avenue, and shows some crates, some of them empty and some of them filled with old milk bottles, at the curb.

Q. And is that the junkyard that you referred to in your testimony?

A. That is right.

1352 Mr. Gariepy: The next one will be No. 70, I believe. Will you mark that, Mr. Reporter.

The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 70 for identification.)

Mr. Gariepy: Q. What does Exhibit 70 show, with regard to your testimony?

A. Exhibit 70 is the last named truck, pulling into the driveway of the Milk Dealers Bottle Exchange. It is another view of the same truck shown in an earlier picture.

Q. Is it loaded with bottles there?

A. It is loaded with bottles.

Q. And where were those bottles obtained?

A. They were obtained at the junkyard at Washburne and Blue Island avenue.

Mr. Gariepy: Will you mark this Exhibit 71?

(The photograph referred to was thereupon marked Plaintiff's Exhibit 71 for identification.)

Mr. Gariepy: Q. I hand you Exhibit 71. What does that picture show?

A. That picture shows the same truck, backed in at the driveway of the junkyard at Blue Island and 1353 Washburne avenue, still with its load of empty crates.

There is a sign there.

Mr. Gariepy: And the next one, Mr. Reporter.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 72 for identification.)

Mr. Gariepy: Q. What does Exhibit 72 show and where was that taken, and when was it taken?

A. That shows empty milk bottles in front of the junkyard. I have to refresh my memory as to which yard that is a part of.

Q. You can't remember offhand?

A. I believe it is the yard at 643 North O'Brien street, in the 600 block on O'Brien street.

Q. Does that picture correctly portray conditions just before the bottles were gathered up, as you observed them when the picture was taken?

A. No, correction. Those are close-ups of bottles at the junkyard where we merely observed them being collected from the junk carts.

Q. I see.

A. That was not one of the yards where we observed the bottles being taken away.

Mr. Gariepy: Will you mark the next one, Mr. Reporter, please?

1354 (The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 73 for identification.)

Mr. Gariepy: Q. Exhibit 73, where was that taken and what does it show?

A. That is taken in the laboratory in the Cook County morgue. It shows an empty milk bottle on the laboratory stand, and I am shown in the picture to identify it.

Q. Was there anything set up in there or arranged before this picture was taken, with regard to this bottle being there at the time?

A. No, sir.

Q. It is the way you found it as you came in?

A. Yes.

Q. And your partner took the picture and you were leaning over?

A. Yes.

The Master: Q. You don't know if that bottle was used in that place, do you?

A. No, sir.

Q. For all you know, somebody might have been drinking milk out of it?

A. Yes. It was just there.

Mr. Gariepy: Mr. Reporter, will you mark this with the next number?

(The photograph referred to was thereupon 1355 marked by the reporter Plaintiff's Exhibit 74 for identification.)

Mr. Gariepy: Q. Exhibit 74, does that refresh your memory, with regard to the picker that you mentioned?

A. Yes, sir.

Q. Is that the picker that you mentioned in your testimony?

Mr. Schaefer: That is objected to, if the Master please.

The Master: Let me look at it.

Mr. Schaefer: In the first place, there is no occasion for refreshing the witness' recollection. The witness has not indicated so far that he has been unable to remember anything.

The Master: Cross out about refreshing recollection.

Mr. Gariepy: All right.

Q. Did you see that picture immediately after it was taken?

A. Yes.

Q. Did you see the condition shown in this picture, in regard to a colored man or what purports to be a colored man, with his hands on a bottle, just previous to the time this picture was taken?

A. Y.

Q. Where was it?

A. At the junk shop at 2048 West Lake street.

1356 Q. Does that picture correctly portray the conditions as you saw them just previous to the time the picture was taken?

A. Yes, it does.

Q. Does that show the picker that you referred to in your testimony?

A. No.

Q. What was the date, Mr. Faust, that Exhibit 74 was taken here?

A. May 11, 1939.

Mr. Gariepy: Mark this next one No. 75, please.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 75 for identification.)

Mr. Gariepy: Q. Look at Exhibit 75. Can you tell me when that was taken, and where?

A. It is a close-up of bottles in front of a junk shop, taken on May 11th. I don't recall the address. I have it noted, but I don't recall it.

Q. Have you a memorandum showing the address where this was taken?

A. Yes.

Q. Have you exhausted your memory and recollection with regard to the place where this was taken?

A. Yes.

Q. You may refer to your memorandum, if you have exhausted your memory and recollection.

A. What number is that?

1357 Q. Exhibit 75, I think.

A. That is a close-up of the bottle in front of 2048 West Lake street.

The Master: Q. What is that over there?

A. A junk shop.

Mr. Gariepy: We will have the next one marked No. 76, please.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 76 for identification.)

Mr. Gariepy: Q. Will you look at Exhibit 76 and tell me when and where that was taken and what it shows?

A. That was taken on May 11th.

Q. 1939?

A. 1939. It shows a car, railroad car, filled with rubbish in the I. C. yards, and I am shown in the picture pointing to an empty bottle, which was dislodged from the rubbish in the car and fell to the ground.

Q. Is that the yards that you mentioned in your direct testimony a minute ago?

A. Yes.

Mr. Gariepy: The next one will be No. 77, please. Mark that, please.

(The photograph referred to was thereupon marked

by the reporter Plaintiff's Exhibit 77 for identification.)

1358 Mr. Gariepy: Q. Will you look at Exhibit 77 and tell the Master when and where that was taken?

A. That was taken on May 11th. It shows the owner of the—or the manager of the junkyard in the 600 block on O'Brien street, loading empty milk bottles in a crate, and showing one of the junkyard men—I mean, one of the push cart men, assisting him.

Mr. Gariepy: Mark this next one, please.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 78 for identification.)

Mr. Gariepy: Q. Did you take another picture at the County morgue, other than the one you referred to?

A. I did.

Q. Look at Exhibit No. 78 and tell me where that was taken and when?

A. That was taken in the same room of the county morgue, on May 11th.

Q. What was in the bottle at the time?

A. The bottle was empty. The bottle was taken through the window. It shows we took a picture—rather, showing in the window, as it showed in the hospital; to prove that that was the room in which the picture was taken.

Q. The white building shown in the picture?

1359 A. Yes.

Mr. Gariepy: Mark this next one No. 79, please.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 79 for identification.)

Mr. Gariepy: Q. What does Exhibit 79 show?

A. It shows the push cart man described in the previous answer, putting an empty quart bottle into his gunnysack. That is across the street from the city dump at 19th or, rather, it is an empty quarry that the city is using for a dump at 19th and Lincoln streets.

Q. Is that an empty milk bottle shown in his hand?

A. Yes, sir.

Mr. Gariepy: Mark the next one, please.

(The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 80 for identification.)

Mr. Gariepy: Q. What does Exhibit No. 80 show?

A. It shows—it is taken—the background is a yard outside of the Wenzel Dairy on Blue Island avenue. It

shows empty quart milk bottles in crates, in the yard, and I am shown in the picture.

Q. What date was that taken?

A. May 11th.

Mr. Gariepy: The next one is No. 81, I believe. Mark that, please.

1360 (The photograph referred to was thereupon marked by the reporter Plaintiff's Exhibit 81 for identification.)

Mr. Gariepy: Q. Exhibit 81, what does that show and where was it taken?

A. The picture was taken in the yard mentioned at 19th and Lincoln streets, and shows a man picking up an empty pint bottle from rubbish.

Q. Is that a milk bottle?

A. Yes, sir.

Q. And is that the same one that you referred to in your testimony?

A. Yes, sir.

Q. Where a man was picking them up?

A. Yes.

Q. What did he do with this bottle after it was picked up?

A. I didn't stay to find out what he did with it.

Q. Did you have occasion to see a Milk Bottle Exchange truck at any of these dumps that you visited?

A. Not at the dump.

Q. Well, did you see them near the dumps?

A. I did not observe any Milk Exchange trucks near the dumps. I merely saw them at the junkyards.

Mr. Gariepy: Cross-examine.

The Master: We will have a recess now.

(A short recess was here had, after which the proceedings were resumed as follows:)

1361 The Master: Are you ready to go ahead?

Mr. Schaefer: Yes.

Cross-Examination by Mr. Schaefer.

Q. Mr. Faust, what was the occasion for your conducting the survey concerning which you testified, with respect to glass milk bottles?

A. It was more or less a routine assignment.

Q. From whom did the assignment come?

A. From my immediate superior, in our agency.

Q. Who is he?

A. Paul E. Faust.

Q. Paul E. Faust?

A. Yes.

Q. What is the name of your agency?

A. Mitchell Faust.

Q. By whom was your agency paid for making this survey?

A. I don't know.

Q. You made no inquiry?

A. Well, I know it was being made in the interests of Fieldcrest Dairies, but it is not ordinarily known to me who is billed or what the bills are.

Q. I am asking you in this particular instance, and not as to your general knowledge.

A. Yes.

1362 Q. In this particular instance, do you know that the survey was conducted on behalf of Fieldcrest Dairies?

A. That is right.

Q. Do you know what the amount of your bill was?

A. I do not.

Q. Do you know whether or not it has been paid?

A. No, I do not.

Q. Do you know who requested that the survey be made?

A. I merely suppose it was made—

Q. Do you know?

A. I don't know.

Q. With whom did you discuss the making of the survey before you went ahead and made it?

A. Paul E. Faust.

Q. With any one else?

A. That is all.

Q. What were your instructions from Mr. Faust?

A. To go out and find out where used bottles come from, what they are used for, what sometimes they are used for in addition to holding milk, and to take pictures of them where ever that was possible.

The Master: Q. Is that all you were trying to do?

A. That is all my assignment was.

Q. You did not get any information on that subject at the junk yard, did you?

1363 A. The question is—

Q. I say, your assignment was to ascertain, if pos-

sible, for what these milk bottles were used, other than for milk. You apparently did not get any information on those subjects at the junk yards, did you?

A. No, sir.

Q. Nor at the New York Central Yards?

A. No, sir.

Q. I would like to ask this question: you said this was a routine assignment?

A. I mean it was more my capacity—it needs qualification. I am merely a merchandise research man at the agency and it was an appointment for me to go out, it was accepted as a routine assignment.

Q. Your job is to do whatever they tell you to do?

A. Yes.

Q. You never did anything like this before, did you?

A. No, sir.

Q. Nothing routine about it, was there?

A. No.

Q. And it was very extraordinary, in fact?

A. Yes.

Mr. Schaefer: Q. I want to call your attention to the photograph that has been marked plaintiff's exhibit 1364 72 for identification. What happened to those bottles after the picture was taken?

A. I did not stay to see.

Q. Now, with respect to plaintiff's exhibit 73, what happened to the bottles shown in that picture?

A. I don't know.

Q. With respect to plaintiff's exhibit 74, what happened to the bottles there shown?

A. I don't know.

Q. Did you or your associate have any conversation with this man before the picture marked plaintiff's exhibit 74 for identification was taken?

A. Not with that man, but with another man present at the yard.

Q. What was that conversation?

A. Well, the conversation wouldn't cover it. It was a deaf mute. I wrote my questions on a piece of paper and he wrote his answer following it.

Q. But you had no conversation with this man?

A. No, sir.

Q. Before you took his picture?

A. No, sir.

Q. You just walked up and caught him in the act of putting these bottles in a case?

A. Yes, sir.

1365 Q. With respect to plaintiff's exhibit 75, what happened to the milk bottles shown in that photograph?

A. I don't know.

Q. What happened to the bottles shown in plaintiff's exhibit 76?

A. The same answer. I don't know.

Q. The same thing is true with respect to those that are shown in plaintiff's exhibit 77?

A. No, sir, those bottles were—no, we did not see anything more done with that crate.

Q. With respect to the bottles shown in plaintiff's exhibit 78?

A. The same answer.

Q. With respect to the bottles shown in plaintiff's exhibit 79?

A. I merely know that the bottle was put in the gunny sack with the others there, as the outline shows.

Q. There your knowledge ceases?

A. Yes, sir.

Q. With respect to the bottles shown in plaintiff's exhibit 80, do you know where those bottles came from?

A. No, sir.

Q. I think you testified with respect to plaintiff's exhibit 81 that you did not know what happened to that bottle after that?

1366 A. No, sir.

Q. Was there any conversation with him before the photograph was taken?

A. No, sir.

Q. You just happened to walk up and he smiled at the camera for the moment?

A. I would say I don't recall what the conversation was.

Q. There was conversation?

A. Yes, we obtained his name and his address.

Q. Did you ask him to pick up the bottle?

A. I asked him to put his hand down, to recall it exactly as he had picked it up. While we were there I saw him and we asked him to repeat it. That is right.

Q. With respect to the trucks that you followed from various junk yards to the bottle exchange, do you know

what happened to those bottles when they got into the exchange?

A. No, sir?

Q. You testified that you saw a truck going from the milk bottle exchange to the Polonian Dairy. Do you know whether or not on that truck there were any of the bottles that you had theretofore seen?

A. What is the question?

Mr. Schaefer: Read the question.

1367 (Question read by the Reporter.)

A. Heretofore seen, you mean—

0 The Master: Q. At the junk yards?

A. Before the truck left in the junk yards? No.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. Mr. Faust, he asked you concerning the conversation with a certain party that you said was a deaf and dumb mute, and you wrote down the question and he wrote down the answer. What was the question you wrote and what was the answer you received?

A. I wrote out on the paper "Where do the bottles go?" And the deaf mute wrote down "Milk Bottle Exchange."

Q. With regard to these bottles that you saw picked up at these junk yards or junk shops, did those bottles go to the milk bottle exchange on these trucks shown in the exhibit here?

A. They did.

Mr. Schaefer: That is objected to. The witness has testified what he saw occur.

Mr. Gariepy: We are trying to trace the bottles.

0 The Master: He says he saw some bottles in a junk yard and he saw some bottles loaded in the junk yard
1368 on to trucks, and then he saw the trucks go to the exchange. That is all he testified.

Mr. Gariepy: That is right.

Mr. Schaefer: Now, he has testified that as to certain pictures shown of junk yards he doesn't know what happened to the bottles thereafter.

The Master: Yes.

Mr. Schaefer: That is my point.

The Master: Well, all right now.

Mr. Gariepy: Q. Did you see these bottles after they

were taken to the milk bottle exchange, did you see them unloaded at the milk bottle exchange, the racks taken off?

A. The first truck there.

Q. The first one?

A. Yes, sir.

Q. Any other one?

A. The second truck, the last one shown, there was congestion in the driveway.

Q. Is that the one shown in the exhibit here?

A. Yes, sir, the last.

The Master: You have gone into this enough.

Mr. Gariepy: Q. Referring to plaintiff's exhibit number 70?

A. Yes.

Mr. Gariepy: That is all, Mr. Faust.
1369 (Witness excused.)

Mr. Gariepy: I offer in evidence plaintiff's exhibits 66 through 82, inclusive.

The Master: They may be received.

Mr. Schaefer: If the Master please, I object to all of them on the ground it has not been shown by the testimony and the exhibits don't show that any of them were ever used for the distribution of milk, and, in the second place, as to a number of the exhibits, specifically, exhibits 72 to 81, both inclusive, it simply shows milk bottles lying in a particular place, no connection at all with the distribution of milk.

The Master: The exhibits may be received. The objection that you make may go to the weight of the evidence, rather than to its admissibility.

(Said photographs so offered and received in evidence were marked "PLAINTIFF'S EXHIBIT NO. 66", consecutively through and including "PLAINTIFF'S EXHIBIT NO. 81" and are attached hereto and made a part hereof.)

Mr. Gariepy: I had expected to have two more witnesses here today. At 9:30 this morning I got a message that the witness could not be here from Detroit, so that I will have to take some additional time. I can present it tomorrow or some other day this week.
1370

We have these depositions which have not been gone over, unless you want to stop now, as it is about twelve o'clock. We can go into these depositions.

Mr. Schaefer: I don't care to go into the depositions

now. I have never read them. They were taken in New York and Philadelphia. I have not yet read them, but I want to go over them before they are offered in evidence.

(Discussion off the record.)

• The Master: Thursday at 10:00 o'clock.

(Whereupon the further hearing in the within cause was continued to 10:00 o'clock, a. m. on September 28, 1939.)

1371

• • Caption) • •

Thursday, September 28, 1939.
10 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, on behalf of plaintiff.

Mr. Schaefer, Mr. Horan, on behalf of defendants.

1372 The Master: Let me say something off the record before you begin with your next witness, Mr. Gariepy.

(Discussion off the record.)

The Master: Are you ready to go ahead now?

Mr. Gariepy: Yes, we are ready. Mr. Huber, be sworn, please.

• PHILIP HUBER, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, please.

A. Philip Huber.

Q. Your address, Mr. Huber?

A. 1315 Wellesley Drive, Detroit, Michigan.

Q. What is your occupation?

A. President of Ex-Cell-O Corporation.

Q. That is located at Detroit, Michigan?

A. 1200 Oakland Boulevard.

Q. This corporation makes the Ex-Cell-O machine and licenses the Pure-Pak container?

A. That is right.

Q. Now, calling your attention to the month of February, 1938, did you have occasion to come to the city 1373 of Chicago?

A. I did.

Q. Did you have occasion during that month to see Dr. Herman Bundesen, health commissioner of the city of Chicago and member of the Board of Health?

A. I did.

Q. And where was it that you saw him and on what date, during the month of February, 1938?

A. February 10th, in his office.

Q. What day of the week was that, if you remember?

A. Thursday.

Q. What time of the day did you meet Dr. Bundesen in his office?

A. Approximately 11:30.

Q. Did you call and make arrangements, or was it a happenstance matter?

A. No, I had an appointment with Dr. Bundesen.

Q. By telephone?

A. By telephone.

Q. Who was present in his office when you met there at about 11:30?

A. He called in another gentleman who was next door. I presume it was his clerk. I didn't meet the gentleman. And then he called in Mr. Krueger.

Q. Did you have a conversation with him at that time?

A. I had a conversation with Dr. Bundesen pertaining to a report.

Q. I show you Plaintiff's Exhibit 4 and ask you if you ever saw that exhibit or document before? (Handing document to the witness.)

A. Yes, sir.

Q. Did you have it with you on that date of February 10th that you went to Dr. Bundesen's office?

A. I had it with me.

Q. Did you exhibit the report to Dr. Bundesen at his office?

A. I did.

Q. What did he say to you at that time, and what did you say to him?

Mr. Schaefer: I object to that as immaterial.

The Master: I will let him answer.

Mr. Schaefer: We have here an ordinance of the City

of Chicago which, the City contends, prohibits the use of these containers. Now, what was said by the president of the Board of Health to the witness or any other person can have no bearing on the validity or the invalidity or the construction of that ordinance.

The Master: I will let him answer.

Mr. Gariepy: Q. You may answer, Mr. Huber.

A. I talked to Dr. Bundesen. I wanted to see—

Q. Just tell what you said. Repeat the conversation.

1375 A. I told him I came over here to meet Dr Bundesen and find out what his decision was regarding the report that was made up by Dr. Arnold. He called Mr. Krueger.

Q. Then what next was said?

A. He advised me that I should go with Mr. Krueger and discuss the matter with him, and that was practically the end of the conversation with Dr. Bundesen.

The Master: Q. Who is Mr. Krueger?

A. Who is he?

Q. Yes. What is he?

A. I can't tell you his title.

Q. Is he connected with the Board of Health?

A. Mr. Krueger, I felt, was the right hand bower of Dr. Bundesen, connected with him.

Q. Connected with the Board of Health?

A. Connected with the Board of Health, yes.

Mr. Gariepy: Q. Did you retire to another room with Mr. Krueger or stay in that room?

A. We left and went to Mr. Krueger's office.

Q. Did you have the report, Plaintiff's Exhibit 4 here, with you at that time?

A. I did.

Q. And what did you say to Mr. Krueger when you retired to the next room?

The Master: And who was present at that conversation?

Mr. Gariepy: Q. Who was present?

1376 A. Nobody at the start.

The Master: Q. What is that?

A. There was no one in the office when I went in Mr. Krueger's office.

Q. Just you and Mr. Krueger?

A. Yes.

Mr. Schaefer: Now, if the Master please, I object to

that last question, which was to state the conversation, on the grounds that I covered before, and for the further reason that although you might feel that there might be some justification for admitting the conversation in the case of the president of the Board of Health, certainly that justification cannot exist in the case of an employee of the Board of Health. We are getting pretty far afield as to the action of the city council, which is the governing body of the city.

Now, what I say about that ordinance or what anybody else says about that ordinance has no effect.

The Master: What is the ground for offering that evidence, Mr. Gariepy?

Mr. Gariepy: The purpose of it is to show the attitude of the Board of Health in regard to the application of the plaintiff, which had been on file since January, 1936, for a period of two years, and, further, the purpose of this testimony is to show what effort, if any, the Board of Health has made to recognize this application and to consider the application, meritorious or otherwise, and why they refused to issue it to the plaintiff, what reason they gave for refusing to issue it to the plaintiff at that time.

Mr. Krueger, the evidence will show, and if it does not, I think we can put on proof here in regard to it, is head of the milk division of the Board of Health.

The Master: Let us assume now that an employee or even the president of the Board of Health gave an incorrect reason, just the same as some lower court might give an incorrect reason for its decision. Now, the upper court would decide the case upon the merits, upon the issues raised, and would disregard any wrong reasons that might have been given by the lower court for a right decision.

Now, what materiality is it—that is the objection made by Mr. Schaefer—that Dr. Bundesen or Mr. Krueger gave some reason which you regard as insufficient?

Let us even go a step further and say that the ordinance prohibits the use of these containers and that members of the Board of Health may have thought that it did not prohibit the use of these containers and for arbitrary reasons declined to issue a permit, even though they may have thought that the ordinance did permit the use of these containers. You have a case in court and the City takes the position that the ordinance does prohibit

the use of these containers. Would a wrong reason or even a statement by some employee of the Board of Health, to the effect that the ordinance did prohibit the use of these containers, but that the members of the Board of Health had decided arbitrarily to forbid their use, avail you now in this court, where the issue is that the ordinance does or does not permit the use of these containers?

Mr. Gariepy: The answer to that is that these containers are subject to the approval of the Board of Health. We made an application to the Board of Health for the approval of these containers. They have refused to approve this container and have refused to give any reason for refusing to approve this container.

The Master: Do they have to give you any reasons?

Mr. Gariepy: Except through Mr. Krueger, which we are going to show now.

The Master: What I am trying to get at is this: Is not the issue here a simple one, that is, whether the ordinance does prohibit the use of these containers? Now then, 1379 what difference would it make whether the members of the Board of Health or some employee might have had some opinions as to the ultimate question whether the ordinance did or did not prohibit such use?

Mr. Gariepy: When you go into the prohibition or the approval, Master, you must go into the facts concerning the reasonableness of it. You cannot just say approval or disapproval, and the court is going to pass upon it. The court is entitled to know the reasons for failing to give approval for a permit. I think the court ought to be entitled to know that. If Mr. Krueger was delegated by the health commissioner to act and to interview this man and tell him why the permit was not granted, after a period of two years, I think that is material and the Master should know why that was done. The ordinance provides that this is subject to the approval of the Board of Health.

The Master: Mr. Gariepy, we might be interested in a great many things. The point is, are they within the issues and are they material?

Mr. Gariepy: They are within the issue that they, vexatiously and maliciously, failed to approve. That is a question of good faith. Let us see if they have used good faith.

The Master: You are not answering my question, 1380 which is a simple question.

Mr. Gariepy: I will answer it.

The Master: The question I have is this: If the ordinance in terms is broad enough to exclude paper containers, does it make any difference what particular members of the Board of Health or employees of that board might have said or not said?

Mr. Gariepy: The ordinance is not broad enough to exclude them. The ordinance says these containers may be used, subject to the approval of the Board of Health, and it is up to them to approve it.

The Master: Is their approval just arbitrary or are not there some principles and rules set forth in the ordinance?

Mr. Gariepy: The sanitary aspects of the container, the sterility of the container, whether the container is safe from a public health standpoint,—those are the only guides and rules the Board of Health can have. They have it for glass and they cannot have a different standard for the paper. If they satisfy the public health standards and the protection of the public health, what more standards can the Board of Health set up in regard to the Pure-Pak containers? We have here evidence showing the merits 1381 of the containers. There isn't any question as to their use in a vast number of cities and there isn't any question in regard to the sanitary handling of them and manual manipulation. We have gone into that at length in regard to those things.

The Master: Do you have anything more to say, Mr. Schaefer?

Mr. Schaefer: Simply that, as I understand the issues as they are made by the pleadings, the issues are these—and I thought we were clear on them a long time ago—first, is the ordinance properly construed when it requires that milk be delivered in standard milk bottles; does it prohibit the use of this type of container; in other words, is this type of container a standard milk bottle within the meaning of the ordinance? The second issue, as I see it, is whether the ordinance properly construed is reasonably related to the protection of the public health.

Now, our entire case, as made by our answer, rests on that ordinance.

As you said a few moments ago, what any employee of the Board of Health or what the mayor of the city of Chicago thinks is the proper construction of an ordinance is

entirely immaterial here. As a matter of fact, I
1382 want to say this, too: The Board of Health is a body
composed of five members. The action of the Board
of Health, even if it were material, could not be shown by
a statement of some employee of the Board.

The Master: He might be somebody delegated and
authorized to speak on behalf of the Board.

Mr. Schaefer: By whom? By the Board?

The Master: Yes.

Mr. Gariepy: The city council would not be expected
to act on that.

Mr. Schaefer: Then show the delegation by the Board.
There has been no showing of that.

The Master: The president acts on behalf of the Board.

Mr. Schaefer: No, sir. The Board of Health acts for
itself.

The Master: It may act for itself, but it may delegate
to the president and to employees under his direction the
performance of a number of duties.

Mr. Schaefer: There has been no showing here, of
course, that there has been any delegation by the Board
of Health in the matter of the construction of an ordinance
of the city of Chicago.

Mr. Gariepy: It is a matter of construction of the acts
of the parties with regard to the approval or disapproval
of this container.

1383 The Master: Let me ask, how long is this testi-
mony of yours going to take?

Mr. Gariepy: Five minutes. This man has got to take
a plane.

Mr. Schaefer: Further than that, I submit that should
not be the consideration. How long will it take us to
rebut that testimony?

The Master: I understand that. I will not rule on
your objection at this time. Let us hear what the evidence
is. He can make an offer. Let us hear the evidence and
then I will rule whether to receive it or not.

Mr. Gariepy: Q. I think the last question put to you,
Mr. Huber, was what was your conversation with Mr.
Krueger when you retired to the next room with him, at
the suggestion of Dr. Bundesen?

A. I asked him if he had seen this report.

Q. Referring to Plaintiff's Exhibit 4?

A. That is right. I told him that we had spent con-

siderable time on it, for two years, and I wanted to know whether there was anything that we could do to satisfy the Board of Health.

Q. Go ahead.

A. And he advised me, not that he knew of, that he had not had time to go over this report. He also advised me—

Q. Just tell what he said; not advice, Doctor.

1384 A. He spoke of in regard to some equipment that some other company—

Q. What did he say?

A. (Continuing) wanted to put in a dairy; that it cost them approximately \$50,000, between fifty and sixty thousand dollars before they were able to get that into the dairy to use. Right there I told him that our company would not spend any such money as that, if that was the case we would not be interested in spending that amount of money. He mentioned that we did not need to think that Mr. Dean could come in here and steal the market with his paper container, that there were other containers that were not ready.

The Master: Q. That were not what?

A. That were not ready.

Mr. Gariepy: Q. What did you reply to that, if anything?

A. I told him I was not interested in anybody else; I was interested just to see whether we could do anything else for the Board of Health of Chicago.

Q. With regard to what?

A. With regard to our machine or any information that the Board of Health needed, and he told me there was nothing to be done, that he had not had time to go over this report.

1385 Q. And was this with regard to the Pure-Pak container and the request that the Fieldcrest Dairies had for a permit to use it in the city?

A. That is right.

Q. And did you go over there, after talking to Mr. Dean, to find out why this permit was not forthcoming?

A. That is the main reason I came here, the only reason I came here, to see Dr. Bundesen and Mr. Krueger.

Q. Did you see anybody after you told Mr. Krueger or did he tell you to see anybody else about this matter of the use of paper bottles in the city?

A. No, he did not tell me to see anybody else.

Q. What were your last remarks to him and his last remarks to you concerning this visit?

A. That he had not had time to go over this report; he could not tell me when we could get or Mr. Dean could get a permit.

Q. Did you hand him the report?

A. He and I went over it. He looked at it and then I took this back with me.

Q. Were there any comments concerning any additional data that was wanted, or anything?

A. No. I asked him to specify if there was anything else we could do and he advised me no.

1386 Q. Did you ask him whether the man that had been designated to furnish information had complied with any requests or suggestions, or failed to comply?

A. I advised him how much money we spent having our people come over here and work with the Board of Health and following their instructions, and I felt nothing had been accomplished. That was the main reason why I came over here.

Mr. Gariepy: Cross examine.

Mr. Schaefer: Now, I would like to have a ruling before cross-examination, on the admissibility of this testimony. I submit it is completely immaterial. That has been demonstrated now. I don't want to cross examine him on it until we have a ruling.

The Master: I will let it stand.

Mr. Schaefer: You will what?

The Master: I will overrule the objection. I will let it stand.

Cross-Examination by Mr. Schaefer.

Q. Prior to February of 1938 had you ever talked to anyone connected with the Board of Health of the City of Chicago with respect to paper containers?

A. Not in the city of Chicago.

1387 Q. Anywhere else?

A. In Detroit I met Dr. Bundesen—I mean Dr. Arnold. Excuse me.

Q. Dr. Arnold at that time was not connected with the Board of Health in the city of Chicago, was he?

A. Then I have not talked with anybody from the Board of Health. He is the only gentleman I met from Chicago.

Q. Then you did not talk to anybody else prior to that time?

A. No, sir.

Q. Now, in the recounting of your story of your conversation with Mr. Krueger you mentioned that Mr. Krueger had said that the sum of \$50,000 was expended in connection with some type of dairy equipment.

A. Yes.

Q. What type was that?

A. He did not specifically tell me what type it was. He just mentioned that figure, of certain equipment that this company wanted to get approved and it took time and cost that much money before they were able to get it approved.

Q. As a matter of fact, don't you know he was talking about short-time high-temperature pasteurization equipment?

A. No, I don't.

Q. Do you know whether or not lengthy experiments were conducted to determine whether or not that type of equipment might be permitted in pasteurizing milk 1388 in the city of Chicago?

A. No, sir.

Q. When Mr. Krueger mentioned the expenditure of the sum of \$50,000 or some figure in that vicinity, he was talking about expenditures for experimental work, wasn't he?

A. I figured that then.

Q. That was your understanding?

A. That is right.

Q. You brought the report which is marked Plaintiff's Exhibit 4 to Mr. Krueger, did you not?

A. To Dr. Bundesen's office first.

Q. And then you brought it to Mr. Krueger?

A. He advised us to go and discuss the matter with Mr. Krueger. Dr. Bundesen, I presume, was quite busy.

Q. And you say that prior to the time when you brought the report to Mr. Krueger, Mr. Krueger had not had an opportunity to examine it, is that correct?

A. That is what he told me.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. Mr. Huber, was any machinery, dairy machinery or dairy equipment, mentioned by Mr. Krueger in that conversation with regard to money spent for having the 1389 approval of the Board of Health?

A. Equipment for the dairy, what it was, there was nothing mentioned about that, whether it was a machine or—

Q. High-temperature pasteurization?

A. Or pasteurization or filters or bottling machines. There was nothing mentioned.

Q. No description given?

A. No, sir.

Q. Had you told him previous to that time how much money had been spent by the Ex-Cell-O Corporation concerning the Pure-Pak container, in the matter of experiments and research for manufacturing it?

Mr. Schaefer: That is objected to.

Mr. Gariepy: You asked him about these expenditures.

The Master: I will let him answer.

The Witness: A. You mean for Chicago or the total amount for the machine?

Mr. Gariepy: Q. For the total research for the use of the machine proper.

A. No, I did not. He did not ask me what the company spent.

Q. Did you tell him, not what he asked you?

A. I only told him the figures we had spent in Chicago alone.

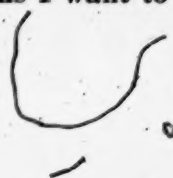
Mr. Gariepy: That is all.

1390 The Master: Anything further?

Mr. Schaefer: That is all.

(Witness excused.)

Mr. Gariepy: Mr. Dean, will you take the stand again? There are two questions I want to ask you.



S. E. DEAN, JR., recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. Mr. Dean, in connection with your testimony in behalf of Fieldcrest Dairies concerning the matter of milk supply, I asked you whether or not Fieldcrest Dairies have, since January, 1936, committed themselves to a milk supply, to supply milk for single service containers in the city of Chicago?

A. You mean committed to the farmers?

Q. Right.

A. That is correct.

Q. And for approximately how many pounds of milk?

A. We take the output of approximately 185 farmers at the present time, the production varying from the low months to the high months of from 60,000 to 110,000 pounds per day.

1391 Q. And 60,000 to 110,000 pounds per day means approximately how many quarts?

A. A quart contains 2.15 pounds of milk.

Q. And has the Fieldcrest Dairies at any time since January 13, 1936, had any other means of using that milk or supplying or distributing that milk in the city of Chicago, other than through Pure-Pak containers?

A. No.

Q. Have you been able to use this farmer supply that you committed yourself for, for the last two years or three years?

A. We have been able to use it, but in so doing we took a loss on that milk.

Q. The milk was used?

A. Yes.

Q. How was it used, in what manner?

A. We took it to our condensary plants and canned it, sold it as evaporated milk.

Q. Would you say that there has been a gain or a loss financially by reason of the fact that you used it in the evaporated milk, rather than using it for the sale of fresh fluid milk in the city of Chicago in Pure-Pak containers, during the past two or three years?

A. Milk for evaporating purposes—

Q. Just answer that yes or no. Was there a gain or a profit from doing either?

1392 A. We have had a loss.

Q. Would you say that loss has been better than \$10,000?

A. Yes.

Mr. Gariepy: That is all.

Mr. Schaefer: No cross-examination.

Mr. Gariepy: That is all, Mr. Dean. Just a minute. Just one more question.

Q. Is that condition of the use of that milk and that commitment in force today? Is that continuing at the present time?

A. That is right.

The Master: Q. What do you mean by commitment? You just buy the milk from farmers?

A. That is right, but—

Q. You did not commit yourself to the farmers to use single service containers, did you?

A. No.

Q. You just decided you would buy some milk from farmers and you had in mind using single service containers to sell the milk in in Chicago, is that what you mean?

A. Is this on the record?

Q. Yes.

A. Reciting the history of—

Mr. Gariepy: No, no. Just answer the Master's question.

1393 The Master: Q. I don't care for any history. I am just asking you the question, what did you have in mind. You say you committed yourself to farmers to buy milk from them, is that right?

A. That is correct.

Q. Then you had in mind selling that milk in single service containers in Chicago, is that right?

A. That is correct.

Q. Why couldn't you sell it in glass bottles?

A. Because we don't think glass bottles are—

Q. You don't think what?

A. We don't believe that—

Q. I don't care what you believe. Did you sell milk in glass bottles?

Mr. Gariepy: Q. Did you have the facilities to sell milk in glass bottles?

A. No, we didn't.

The Master: Q. Do you sell milk in other places in paper containers?

A. No. Only in the suburbs at the present time.

Q. And your business at the present time consists of selling either in paper containers, if you sell the milk to the public in fluid form, or selling it as evaporated milk, if you do not sell it in fluid form, is that correct?

1394 A. That is correct.

Mr. Gariepy: Q. You do not have any glass bottle equipment, nor are you equipped to sell milk in glass bottles, Mr. Dean?

A. Not in connection with the Fieldcrest Dairies.

Mr. Gariepy: That is all.

The Master: Q. Did you make these purchases of milk from the farmers on the theory that you were going to get a permit for the sale of the milk in paper containers in the city of Chicago?

A. Based on the assurance—

Mr. Gariepy: Answer that yes or no. The Master wants to know yes or no.

The Witness: A. I can't answer certain questions yes or no.

The Master: You can answer that one yes or no. Read the question again, Mr. Reporter.

(The Master's question was read by the reporter as above recorded.)

The Witness: A. Yes.

The Master: Q. Would you have bought the milk or made these commitments for the purchase of milk from the farmers if you were not able to sell in single service containers that milk in the city of Chicago?

A. No.

1395 The Master: That is all.

Mr. Gariepy: That is all, Mr. Dean.

(Witness excused.)

Mr. Gariepy: Mr. Bunta.

ANDREW BUNTA, recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. Your name is Andrew Bunta?

A. Andrew Bunta.

Q. And you were sworn the other day?

A. I was.

Q. And your address?

A. 4750 North Long avenue.

Q. Chicago, Illinois?

A. Right.

Q. Your business is that of a law clerk?

A. That is right.

Q. Calling your attention to yesterday afternoon or yesterday evening, did you have occasion to purchase milk in the city of Chicago at drug stores?

A. I did.

The Master: Now, let us see. Do you mean just drug stores or drug stores where they have soda fountains 1396 and lunch counters?

Mr. Gariepy: I will ask him to describe the stores.

Q. Describe the stores you went to, Mr. Bunta, and purchased milk yesterday afternoon, at 5 o'clock.

A. They were drug stores that had soda fountains—

Q. Name them and give the address of each one.

A. I went to four of them. The first drug store I went to was located in the 33 North LaSalle Building. It was a Liggett's drug store. At that store they sell cigars, luncheons and have a fountain counter, where they sell Goca-Cola and other drinks and lunches.

From there I went to the Liggett's drug store located at about 147 North Clark street, where they have similar arrangements. From there I went to Walgreen's drug store located at 160 North LaSalle, where they again have a similar arrangement.

Q. That is a lunch counter and serving lunches and drinks?

A. Right.

Q. Go ahead.

A. From there I went to the Loop drug store located at

100 North LaSalle, where again they have the same arrangement.

Q. And did you ask for milk to be taken to the office or to be carried out of there?

The Master: Q. Where did you go? To the prescription counter or the fountain?

1397 A. I went to the fountain.

Mr. Gariepy: Q. What did you ask the fountain man?

A. I asked for milk to be taken out.

Q. Did you secure milk to be taken out?

A. I did.

Q. Will you pick out of this pack of containers those that were sold to you and identify them as to each fountain. Take just one at a time. Where was that one secured?

A. That was secured from the Liggett's drug store located in the 33 North LaSalle Building.

Q. Where did you secure the container I am handing to you now?

A. I secured that container from the Loop drug store located at 100 North LaSalle Building.

Q. And this container, where was it secured?

A. That was secured in the Walgreen drug store located in the 160 North LaSalle street building.

Q. And this one?

A. That one was secured in the Liggett's drug store located at 147 North Clark street.

Q. How was the milk served when it was put in there? What did the server do behind the counter?

A. He took a bottle out of the ice box.

The Master: Q. A glass bottle?

1398 A. A glass bottle, and poured it into this container and gave it to me that way.

Mr. Gariepy: Q. And inserted a cap on there with his thumb?

A. Yes, inserted the cap with his thumb, that is right.

The Master: These containers that you have here are just paper glasses, we will call them, or tumblers, with covers inserted in the top.

Mr. Rall: Of about one pint capacity, with a ridge in the top for the insertion of a cardboard or fiber board cap.

The Master: Yes.

Mr. Gariepy: Q. One of them has—which one is this?

A. That was purchased in Liggett's at the 33 North LaSalle Building.

Mr. Gariepy: Q. This one, Master, appears to be paraffined.

The Master: The cover fits over the top instead of fitting into the top.

The Witness: That is right, instead of fitting into a groove.

Mr. Gariepy: The other ones do not appear to have any paraffin coating on the outside of the top.

Mr. Schaefer: That is objected to.

1399 Mr. Gariepy: You can describe them yourself, Mr. Schaefer, then.

The Master: Go ahead. That is all right. I will let that stand.

Mr. Schaefer: I would like to have that statement out of the record.

The Master: All right, let that be stricken. Go ahead.

Mr. Gariepy: Q. Mr. Bunta, I ask you to look at these three containers here and tell me whether you see any paraffin on the top of the cap or on the outside of these containers.

Mr. Schaefer: That is objected to.

Mr. Gariepy: The witness can tell what he sees, Master.

The Master: Objection sustained.

Mr. Gariepy: The witness can surely tell what he sees.

The Master: He is not an expert on paraffin.

Mr. Gariepy: Just look at it. It shows for itself.

The Master: I don't know whether he can tell or not. It may be wax; it may be paraffin; it may be something else. The paper itself may be of such a character that it looks like it is waxed or paraffined. I don't know. I don't know that he is qualified to tell us whether it is paraffin or what it is.

Mr. Gariepy: He can tell what he observes, whether there is any wax or paraffin on it, the same way in 1400 which you can tell.

The Master: I don't know whether we can tell or not. Something scratches off of it. I don't know whether it is paraffin or part of the paper. The paper seems to be a little bit damp and I seem to be able to scratch something off of it.

Mr. Gariepy: I offer these exhibits as our exhibits Nos. 82, 83, 84, and 85.

The Master: I cannot accept those in evidence. We are not going to have a lot of milk here running through the record.

Mr. Gariepy: We will empty the milk out, Master, if that is the objection, and have the containers without the milk. They now appear to contain the milk as served.

Q. They are in the same condition now as when they were delivered to you, Mr. Bunta?

A. That is right.

Q. Except this cap has been taken off?

A. That is right.

Mr. Rall: Make it clear that you are not offering the milk.

The Master: Any objection?

Mr. Schaefer: Yes, I have an objection.

The Master: That is the same objection you made 1401 the other day?

Mr. Schaefer: Yes, and I would like to amplify it by calling attention to the regulation of the Board of Health, which for some reason has not been disclosed, and which was adopted by the Board of Health on November 12, 1935. It contains "whereases" which I will not read at this time, but the resolution is as follows:

"Be it resolved; that all milk and milk products shall be sold, served or dispensed to the final consumer only in unopened original containers as received from the distributor; and no fractional portion or any part of any original package or container shall be served or dispensed for consumption, except for manufacturing purposes."

Now, if these things are sold, they are sold in violation of that regulation of the Board of Health. The Board of Health cannot obviously be a police officer at all times. Perhaps the city can afford it, but the city sees fit to spend its money for police protection in different ways. This is so obviously immaterial, it seems to me it is foolish to argue it.

The Master: Let me see that regulation. Listening to you as you were reading it I did not quite catch it. I was wondering whether the language was broad enough to 1402 keep a restaurant from opening a bottle and pouring the contents in an ordinary glass.

Mr. Schaefer: Yes, it is. They deliver a bottle of milk to the consumer for the restaurant.

The Master: They cannot serve a glass of milk, then?

Mr. Schaefer: They serve the customer the glass and they give him the bottle.

The Master: According to that, the sale of milk in these

containers that you have here is in violation of the regulations of the Board of Health, is it not?

Mr. Gariepy: What difference does it make, Master? If the city permits a constant violation of the regulations, then the regulations are in law considered null and void. There must be equal protection of law and there must be enforcement of the ordinance, if it is going to have any effect or enforcement whatever. They cannot enforce it in one case, in one kind of a container, and say that the others are being done, but that they cannot police it. It is their duty to enforce such a law, and I doubt whether it would stand up in the case of a drug store. They would have to show a health problem justifying it.

The Master: They do show a health problem.

Mr. Gariepy: What do they do?

The Master: They have a recital here, that 1403 "Whereas the increase in the number of cases of scarlet fever in the city of Chicago is increasing the possibility of milk borne infections and whereas it now becomes urgent and necessary for milk and milk products to be used in the city of Chicago to be dispensed only from unopened containers as received from a distributor, therefore be it resolved—"

Mr. Gariepy: Apparently the cause and purpose and object of passing that resolution has gone out of existence and they are permitting the sale today.

The Master: I will sustain the objection, partly on the grounds stated before. You have not yet shown any notice to the Board of Health authorities of the sale in these packages and it does not appear here just what they have done. It may be they have been enforcing this ordinance all over town and that these people have just begun to violate it. I don't know what they have been doing.

Mr. Gariepy: We will have to bring in the dealers to show they have been doing it for a long period of time.

The Master: You are opening up a field here that I don't quite get the materiality of. There is no contention here that you are going to sell in these particular types of containers.

Mr. Gariepy: No. Much better containers, our 1404 containers.

The Master: Nor that you are going to sell just for lunch counter purposes, which may be drunk either on the premises or just outside of the premises. Manifestly, this type of container is not of the durable and

strong type of container which would be required for the sale of milk to homes or to be taken home. This is just a temporary container to be used for picnic lunch. That is about all it is.

Mr. Rall: The sanitary qualities of the paper, however, seem to me to be exactly the same; the question of whether they have got to go to the mill, for example.

The Master: No. This type of container is for temporary use. If this container were to be used for containing milk for any period of time, there might be a whole lot different problem than you have here now. Apparently these containers are just to be used for, say, twenty minutes or so at the most. They buy the milk and drink right away in these containers. It is a different problem entirely from that presented in the type of container which you have here.

Mr. Gariepy: Which must be sold the next morning as labeled on the lid and as per the ordinance. It must be sold for use on the following day.

The Master: Yes, I know.

1405 Mr. Gariepy: They are all temporary, Master.

The Master: I think you are going far afield. I think you have got sufficient here to show that there are some types of containers used for lunch counter purposes. Let us not get so far afield here that we will have a record that is long and contains so many subjects that have nothing to do with the case that it will just complicate the whole trial. We will never get through with it.

I think it sufficiently appears in the record that you have purchased milk at some of the lunch counters, from drug stores or fountains, in containers such as those described at the present time, and that those lunch counters or drug stores were close to the city hall.

Now, then, I have let that go in for what it was worth, although I expressed some doubt this morning that no notice had been shown to be in the possession of the public health authorities of such sale.

I don't know what you accomplish by simply accumulating that evidence, by the production of some more of these containers. They are sold for a different purpose and are a different type of container. You have enough in
1406 the record on that now. I will sustain the objection to any further proof on that line.

Mr. Gariepy: That is all, Mr. Bunta.

(Witness excused.)

Mr. Gariepy: Mr. King.

BRUCE KING, recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

The Master: You just make an offer of what you want to show by this witness, that he bought some of these—

Mr. Gariepy: The record may show that Mr. Bruce King is on the witness stand and is the man who was here last week. I offer to show by this witness that yesterday afternoon, about 5 p. m., he purchased fresh fluid milk at the following locations in the loop:

Thompson's restaurant at 121 West Madison street, a pint bottle of milk in paper;

The Triangle restaurant—

Mr. Schaefer: I object.

Mr. Gariepy: Wait a minute, Mr. Schaefer, hold yourself a minute, please.

The Master: He is making an offer.

Mr. Schaefer: He says a pint bottle of milk.

1407 Mr. Gariepy: A pint paper bottle, if you want to call it that.

The Master: It is not a bottle. It is a pint paper container in the shape of a tumbler.

Mr. Gariepy: That is the Master's definition, but a bottle may be anything that is used, and that is nothing more than acceding to Mr. Schaefer's argument that it has to be glass.

The Master: You can call it a bottle.

Mr. Gariepy: But it is made out of paper.

The Master: Yes, it is made out of paper, and it is cylindrical, slightly tapering down towards the bottom, and it is like the ordinary glass tumbler.

Mr. Gariepy: Indicating on the outside of said container "Carry-Out Service for Quick Lunch."

The Master: That is it.

Mr. Gariepy: Also that yesterday there was purchased from the Triangle restaurant another half-pint of milk in a paper container, with the name "Triangle" on the outside.

Also from Maurice's restaurant there was purchased yesterday, in a paper container, at the hour of 11:30 a. m., some more fluid Grade A milk for drinking purposes,
1408 which is in a container with no indication on the outside, except just a loose tab, with a wire on the

top for inserting it. And that the same purchases at the same stores in the same types of containers were also made on September 26, 1939.

Q. Mr. King, did you have any difficulty in securing the milk to carry out? When you asked the clerk for it, was there any hesitancy in getting the milk?

Mr. Schaefer: That is objected to.

The Master: Sustained. Immaterial.

Mr. Gariepy: All right, that is all, Mr. King.

(Witness excused.)

Mr. Gariepy: Dr. Tonney, will you take the stand, please?

DR. FRED O. TONNEY, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, please, Doctor.

A. Dr. Fred O. Tonney.

Q. And your address?

A. 6739 North Greenview avenue, Chicago.

Q. Your business and occupation at this time?

A. Public health consultant, bacteriologist and physician.

1409 Q. Are you duly licensed to practice in the state of Illinois?

A. Since 1909.

Q. How long have you been a bacteriologist?

A. Well, since leaving college. My work began as a bacteriologist.

Q. When was that, Doctor? Leaving college does not mean anything to us, unless we know when you left.

A. About 1909.

Q. Have you ever held any positions with the Board of Health of the City of Chicago?

A. I have, numerous ones.

Q. Name them, and the dates that you held the positions.

A. There have been so many, I think perhaps I better summarize. I entered the Department of Health immediately after leaving the University of Chicago.

The Master: Q. When?

A. And held minor positions from 1909 up to 1923, when I was appointed director of laboratories and research.

Mr. Gariepy: Q. Of the Board of Health?

A. Of the Board of Health.

Q. Of the City of Chicago?

A. Of the City of Chicago. At that time it was called the Department of Health.

Q. Proceed.

A. That position I held until 1931, when I was 1410 appointed assistant commissioner of health, and successively to a number of similar positions with similar duties, with varying titles, up to 1937.

Q. What was your title and office in 1937 with the Board of Health of the City of Chicago?

A. The last title I held was executive officer.

Q. What were your duties as such?

A. Administrative, principally, although a large part of the years they were not essentially different from my immediately preceding duties of my immediately preceding title, which was director of technical service and research.

Q. And as director of service and research of the Board of Health, what were your duties and when did you perform these duties, during what years?

A. Under that exact title, I am not quite sure of the years. I think from 1932 until 1936, if I remember correctly.

Q. What were your duties?

A. The nature of the duties was the administrative responsibility for the dairy division, for the food inspection division, for the bureau of laboratories and for the bureau of sanitary engineering, and also responsibility for research conducted by the department.

Q. Did you at any time, up to the time that you 1411 left the Board of Health of the City of Chicago—which was what date?

A. It was in January of 1937.

Q. Did you up to January, 1937, perform any research work in connection with the paper milk bottle called the Pure-Pak container?

A. No.

Q. On any milk bottle, any quart milk bottle or pint milk bottle, for the sale of milk at retail, did you perform any research work?

A. On glass bottles, yes.

Q. I mean on paper.

A. Not on paper.

Q. What did you do on glass bottles in the bacteriological department? What work did you do there that was considered research or technical work?

A. Of course, in the early days we worked on the bacterial content of bottles, that is, before standards had been developed. I recall one particular type of research on glass bottles, not conducted by me personally, but directed by me and planned by me, on the efficiency of the soaker washer and sterilization type of machine in the dairies.

Q. That is, in dairies using the glass bottle?

A. Yes.

1412 Q. Is that same machine now being used?

A. Those types of machine are still in use.

Q. In the city of Chicago today?

A. Yes.

Q. And in dairies that are permitted to sell milk?

A. Yes.

Q. In the city?

A. Yes, sir.

Q. What other public health experience have you had as a bacteriologist and physician, Doctor, other than that which you have just described?

A. More recently I was medical officer for the Federal Trade Commission in Washington, D. C., assigned to the control of foods and drugs under the new act.

Q. Are you acquainted with the—

The Master: Q. Are you occupying that position now?

A. No. I resigned a short time ago.

Mr. Gariepy: Q. Are you acquainted with the procedures employed by the Board of Health of the City of Chicago, or were you acquainted with them up to the time you left there, concerning the sanitary aspects of the glass milk bottle?

A. Yes, sir.

Q. And what procedures were employed there to ascertain the sanitary aspects or sanitary qualities of a glass milk bottle?

1413 A. Two. One was known as the rinse test of the bottle itself, and then followed by an inspection of the premises by a milk inspector, to determine sources of contamination.

Q. Doctor, in connection with your public health work have you published or edited any articles relating to public health, especially with regard to milk control?

A. Yes

Q. Will you name them?

A. Quite a number of articles.

Q. Name them for the Master.

A. Forty-five to fifty all together on various subjects. Let me see. In the early days, a study of tuberculosis in the Chicago raw milk supply, in which it was demonstrated that at time about ten per cent of the supply was infected with bovine tuberculosis.

Mr. Schaefer: Q. When was that, Doctor?

A. That was in 1910. It was conducted together with the University of Chicago and principally in the laboratories of the Board of Health.

Again in 1927 another survey was made on the same subject, indicating that about three and one-half per cent of the milk at that time was still infected with the organisms of bovine tuberculosis.

1414 Then from time to time various other problems came up. For instance, there is an article on the control of pasteurization, which was developed in the early days, you might say the infancy of pasteurization.

There were a number of articles on laboratory apparatus, field plates, devices for the testing of milk, field bacteriological plates, also a visible dirt test for determining the sanitary quality of milk. Later studies of Vitamin D, the sunshine vitamin, in relation to milk. There was one article which was, I think, along about 1935, on that subject.

Mr. Gariepy: Q. It was a study of yours, was it?

A. A study by me.

Q. An article by you?

A. Entitled "The Pro and Con of Vitamin D Milk."

There were also studies of Vitamin D in Child's Health, having some relation to milk, published in various journals, scientific journals.

That is all I happen to remember now specifically relating to milk. There may have been others.

Q. Did I ask you to give the schools that you were a graduate of?

A. No.

Q. Do so, please.

A. My education was had at the Univeristy of Chicago, Rush Medical College, and Loyola University School 1415 of Medicine, including post graduate work of about ten years, from 1900 to 1910.

Q. Did you know a Dr. White who testified here the other day?

A. Yes, I am acquainted with Dr. White.

Q. Did he ever work with you or was he your subordinate over there while you were there or was he your superior?

A. He was my assistant.

Q. In the bacteriological department?

A. Yes.

Q. Doctor, when did you first hear of this matter of a single service container of Pure-Pak milk bottle?

A. I have been hearing about it for several years in various conventions, public health conventions, particularly the American Public Health Association, which I attend regularly. I have been reading about it in public health literature for some time, I would say four or five years.

Q. When did you first hear about this litigation, the subject matter pending here?

A. A few weeks ago I heard about this particular matter specifically.

Q. And how did you hear about it or know about it?

A. I read a newspaper account of it.

Q. Did you immediately thereafter call me or come in to see me?

A. Yes. I was quite interested in the proposition 1416 and I volunteered my services in this matter.

Q. Have you been promised any remuneration on account of your testimony and appearance here today or at any other time?

A. No.

Q. Have you had any contacts with Fieldcrest Dairies or Mr. Dean in connection with testifying here?

A. No.

Q. Or in connection with any time that you expended in attending any hearings here and hearing the witnesses here?

A. No.

Q. Did you have occasion to go and inspect the Chemung plant of Fieldcrest Dairies at Chemung, Illinois, where the Pure-Pak container is packaged?

A. I did.

Q. And did I make arrangements for you to go there?

A. Yes, sir.

Q. Did you ask me for that?

A. Yes, I requested that.

Q. And did you also go to the Borden plant at River Forest, Illinois, and inspect the paper bottling machine and equipment there?

A. I did.

1417 Q. And when was that, Doctor?

A. One day last week. I think it was the 22nd of September.

Q. Have you had occasion to inspect a dairy plant using and bottling milk in glass bottles and operating under permission of the Board of Health, in the city of Chicago, recently?

A. Yes.

Q. And what dairy was that?

A. That was the Wieland Dairy on West Lawrence avenue.

Q. When did you visit the Wieland Dairy?

A. Yesterday.

Q. What was the purpose of your going to those three dairies, the Chemung plant, the Borden plant and the Wieland plant?

A. I wished to observe personally, and particularly for comparative purposes, the methods of handling the paper and glass containers, and to observe particularly the possibilities of contamination of each, and to bring my knowledge of the subject down to date in regard to both types of containers.

Q. Will you tell the Master what you observed with regard to the sanitary conditions in the Chemung plant at Chemung, Illinois, of Fieldcrest, and also tell him what you observed with regard to the sanitary conditions
1418 prevailing at the bottling of milk in glass bottles at the Wieland plant?

A. I will take them one at a time.

Q. Bearing in mind the public health angle, the protecting of public health.

A. Yes. My entire interest in this is from a public health standpoint.

Q. Proceed.

A. On entering the plant at Chemung, bearing in mind now a comparison with the usual glass bottle plant, my

first impression is the superior appearance of the plant, I mean from the standpoint of general sanitation. That is, the plant is not sloppy; that is to say, there is no water being sloshed around. It does not splash on your clothes or on your feet. There are no hoses that are spraying the apparatus constantly. It is a dry and clean process, and in a sanitary and light room.

Then I studied the method of filling the paper containers or bottles, with special reference to the time consumed between the opening of a package of paper containers from the factory and the final filling with milk, and sealing it. That process is exceptionally short, compared to the washing and sterilizing and filling of glass bottles.

In that process there is only one point of contact 1419 that is of any significance between employees and the paper container. That is the point at which the case of flat paper containers is opened in the filling room by a white gowned employee, with his sleeves rolled up, and in which packs, four to six inches high, of the flat paper are produced on the shelf in the machine, which automatically feeds them into the machine. That, as I say, is the only point of contact, human contact, by employees of the plant with the dry paper.

Then the machine, rasping each part, passes it into an opening device, in which the carton is opened by rubber vacuum discs, and passes it on into another section, which seals the bottom on with glue at a high temperature, and then passes it on to a paraffin bath, in this case at a temperature of 172 for 19 seconds, and then from the paraffin bath on to a cooling device for about 18 seconds; then to a crimping machine, which just crimps the top so that it will fold; then to the filler, two devices, one on each side, filling a half pint at a time simultaneously. Then the bottle passed on to a closing machine and was sealed by wire brads at a high temperature, hot, and was passed out sealed to the man, who merely packed the bottles up and put them into containers.

My impressions from a sanitary standpoint were, 1420 that is, in comparison with the ordinary bottle washing and filling process, that there was far less opportunity for contamination of the paper container along the route from the carton as received from the factory to the filling point.

There is also a protected pouring device—

Mr. Schaefer: I didn't get the last sentence. Excuse me.

(The record was read as above recorded.)

The Witness: A. (Continuing.) There is also a protected pouring device on the side of the top. This is a sort of gable roof top.

The Master: Q. Of the container?

A. Of the container, which completely covers and protects the pouring lip all through the process, even at the point where the employee takes out the folded carton. The pouring lip is protected, sealed, that is, for a distance of perhaps a half-inch around the opening. That remains sealed throughout the process and is still sealed when the bottle is filled and packed.

Q. The bottle is closed up after the milk is put into it, is it not?

A. It is not put in through the pouring lip. It is put in through the top of the bottle and then the top of the bottle is crimped into a gable roofed sort of top and 1421 sealed, but all this time the pouring lip to the consumer who gets the milk is protected from human hands or other contacts.

Mr. Gariepy: Q. Have you any opinion as to whether this gable top, as you call it, wired and sealed, is tamper-proof?

A. Yes, I think it would be. It is sealed and intended to be sealed until the bottle is opened by the consumer.

Q. Proceed.

A. Now, speaking of the Borden plant, the procedure is slightly different, although not essentially. One has the same impression of a very clean, sanitary plant, free from the splashing and jets of steam and so forth that are prevalent in the ordinary bottle filling plant.

Q. What about the number of employees employed in that procedure?

A. There were four at Pure-Pak and I think four at Borden.

Q. Proceed.

A. They were all dressed in white garments, with sleeves rolled up, and they had every appearance of being cleanly.

The Master: Q. Where was the Borden plant located?

A. In River Forest. I don't just recall the address.

Mr. Gariepy: Q. It is near the "El" station there, is it not?

A. It is near the elevated station, on Circle avenue. There is a difference, however, in the system of 1422 handling the Borden bottle, in that it comes completely made from the factory. It comes in large cartons. They are all completely made, and not in flat sections, as in the case of the Pure-Pak. These large cartons are brought into the filling room by an attendant, or they may come in through a chute, and are opened immediately before the process starts, and are filled in sections, perhaps that high (indicating), about a dozen cartons.

The Master: Q. Indicating a distance of about three feet?

A. What is that?

Q. Indicating a distance of about three feet high?

A. Yes, about three feet high, which are fed into the receiving portion of the machine. Then the process from that point on is again automatic. It proceeds without contact with human hands, to the completely filled container.

Mr. Garipey: Q. Did you have occasion to observe the place where the blanks are stored at the Chemung plant of the plaintiff, before they are used in the machine?

A. I did.

Q. And what kind of a room is that?

A. They are stored in a large light room, at a temperature between 90 and 100, I believe, to keep the paper dry, to prevent it from absorbing moisture.

1423 Q. Did you have occasion to observe where the paraffin was stored before it was fed into the machine and used?

A. I did not see where the paraffin was stored. I saw it before it was poured into the machine. It was melted; ordinary block paraffin. It was in the process of being melted in a small tank and then going into a larger tank for the purpose of dipping. In the Borden plant the cartons are already paraffined when they arrive. There is no paraffining in that plant.

Q. What did you observe at the Wieland plant?

A. The usual process of bottling by the soaker washer method. The bottles are washed in one room and the filling occurs in the next room.

The Master: Q. What are they washed with?

A. They go into a large tank known as a soaker tank, containing an alkaline solution. That is one of the things we studied in our original research, that is, the concentra-

tion necessary and the heat necessary to sterilize these glass bottles.

In this process, however, the soaker solution is kept at two per cent alkali, that is, in terms of sodium hydroxide. The alkali is added to from time to time to keep that concentration up to two per cent. Perhaps it runs, and 1424 often does, as high as six per cent, and perhaps once a month the accumulation of sludge is cleaned out of the tank.

The bottles go in in great conveyors. Of course, they are stacked by hand onto the conveyor, and then they are dropped onto another conveyor, which conveys them down to the tank. They are in there about fifteen minutes, at a temperature of at least 120. The action of the alkali—it is a caustic—is to dissolve the dirt, dried milk solids and the bacteria to a certain extent.

After that process the bottles go through a rinse, and then finally through a chlorine rinse. That is a solution of water containing a chlorine derivative having an available chlorine content of fifty parts per million or more. That, of course, is a second sterilizing process.

Then the bottles coming from the chlorine rinse receive a plain water rinse, and then go on a long endless chain, which is perhaps thirty-five to forty feet long, through a door to the next room, where the filling occurs.

Q. Up to that time or up to that point would you say the bottles are sterile or essentially sterile?

A. I think they are. Probably not completely sterile.

Q. I say essentially sterile.

1425 A. It would depend on the concentration—I know that they are not always sterile.

Q. What is that?

A. I know that many of them are not completely sterile.

Q. I didn't say completely sterile. I said essentially sterile.

1426 The Witness: Well, I think if the apparatus is conducted properly, if the strength of the solutions are kept at proportion, if the temperature is kept at proportion, if the chlorine content of the rinse is kept at the proper proportion, then they are essentially sterile from a practical standpoint so far as spreading disease is concerned. The danger, of course, is that one or more of those steps may not always be carried out.

The Master: Q. From your experience in the public

health department, you found that conditions are usually such as to result in practical sterility, did you not?

A. Usually, yes, not always. We were constantly testing that and constantly having to go out and find what was the matter.

Q. That is the inspection service for the purpose of keeping conditions the way they ought to be?

A. That is right, sir.

Q. That inspection service, in your opinion, has been well maintained?

A. I think it has been reasonably well maintained.

Mr. Gariepy: Q. How often do they inspect, if you know, Doctor.

A. I think that is quite variable. When I was in charge of that work we constantly had samples brought in to 1427 the laboratory, and when we got results indicating that something was wrong, the Dairy Division would be advised of it and they would send out an inspector to locate the difficulty, and then we would have a flood of samples from that particular plant, we would have them daily for a week, perhaps, but, I would say ordinarily we tried to get around about once a month on the average.

The bottles after they are rinsed go into this endless chain, this long endless chain, into the next room and then there is one point there that I think is the weakness from a sanitary point, that these bottles are in the open air and they are subject to picking up by employes, and they are subject to picking up when they want to clean out the line and put in a different size, for instance, they are open to flies and it is very difficult to keep all flies out of a dairy establishment, there is so much food around, and they run around this plant and sometimes during the process they remain there in the open for quite a while.

Then they enter into a circular filling machine which fills the bottles and passes them on to another circular capping machine adjoining.

They come out of the capping machine and then 1428 are picked up by hand by one or two attendants, by the tops. Of course, the glass bottle, one of the weaknesses is that you pick it up by the top, right over the pouring lip.

Q. That is after the cap is in?

A. After it is filled and capped. These are the flat top caps. There are two different types of caps, but in this

case they were the flat top caps that are used for cream bottles of all sizes, they were picked up like this (indicating) and put into a handle—

Q. Over the top?

A. Yes.

Mr. Gariepy: Q. Like the cap shown in this half pint of Grade A Cream, did you purchase that in the City of Chicago?

A. Yes, I did.

Q. Yesterday?

A. Yesterday.

Q. At my request?

A. Yes, sir.

Q. With this cap that you are describing to the Master?

A. Yes, and that is the type of cap that is used generally for cream bottles, after filling cream bottles; 1429 there is no hood over it, it is sold this way and the handling is naturally by the top, and, of course the finger contaminations get on the pouring lip which is entirely unprotected.

The Master: Q. Entirely what?

A. Entirely unprotected.

Mr. Gariepy: Q. Did you purchase, at my request, a half pint of grade A Cream from the Meadowmoor Dairies, put up by them, at some store?

A. Yes, sir, near my home.

Q. In Chicago?

A. The Borden-Wieland bottle of cream was purchased from the Atlantic & Pacific Store at 1438 Morse Avenue, Chicago, and the Meadowmoor bottle of cream also in a flat top cap was purchased from Waddell's Milk Depot, 1509 Morse Avenue in Chicago.

Q. Did you also purchase a quart of milk put up by the Meadowmoor Dairies, Grade A Milk, in the store yesterday?

A. At the same place, yes, Waddell's Milk Depot. I purchased that for the reason, in order to show the beginning of an effort, at least, to protect the pouring lip of these bottles. This is somewhat protected, at least it covers the top portion of the lip. This is not a complete 1430 protection. The finger is kept here and the milk drops down over the pouring lip.

The Master: Q. You say "here". By "here" you mean the fingers get on the portion of the glass milk under the paper hood?

A. The paper hood which only comes down about a quarter inch from the top, this there (indicating). Of course, there is a hood type. This is not a hood type, but there is a hood type that comes down an inch to an inch and a half, a second cap that is used on some containers, however it is not universally used. It is used on quart bottles, I believe, when delivered to home, but not to stores—that is not to many stores, at least.

Q. In the hood type there are two covers, are there not?

A. There are two covers, yes.

Q. There is first a disc cover in the top of the bottle and then over that is the hood?

A. Over that is the hood.

Q. In this sample that you have here, in the quart bottle with the hood going down about a quarter inch over the side, is there also a disc?

A. That is a single cap, just a depressed top.

Q. A single cover?

1431 A. A single cover, yes. It is not really a hood type. It gives some protection but not full protection of the pouring lip.

Mr. Gariepy: Q. You gave your opinion, Doctor, as a public health expert, with regard to the merits of the Pure-Pak Container, as you observed it packaged and filled, as compared with the glass bottle as you saw it washed and filled at the Wieland Dairy in the last few days?

A. Yes.

Q. From a public health standpoint?

A. Yes.

Q. What is your opinion?

A. That the Pure-Pak Container represents a distinct advance in the sanitary sale of milk and a safeguard against the spread of disease by milk containers and by milk.

Q. What are your reasons for that opinion, Doctor?

A. The fact that it is so much better protected along the line from the empty container to the filled container and that it is not subject to contamination by employees, to anything like the same extent, and that it is not subject to contamination by flies. Furthermore, that the process is shorter, there is less exposure.

Q. The process of time is shorter?

1432 A. The time element is much shorter, a minute to two minutes exposure sometimes compared to half an

hour or sometimes even twenty-four hours of exposure of bottles, where the run has been finished and the bottles are left there and they are left open until the next run.

Q. Does the origin of the glass bottle, from re-use to use, and from re-use to use again, enter into it, in your opinion?

The Master: Read the question.

(Question read by the Reporter.)

Mr. Gariepy: Q. In other words, you find a bottle of milk as you buy it and you use it and bring the bottle back to the store, and you may get the bottle back after two or three days, or your neighbor may get it. Does that factor enter into your opinion in regard to the merits of the ordinary container?

A. Yes, it does.

Q. In what respect and how?

A. In that bottles are returned from cases of contagion. On that point, although there is a law requiring that bottles be held during the case of a quarantine, the weak point is that the diagnosis is practically never established at once of these communicable diseases such as measles, 1433 scarlet fever, aseptic sore throat, and in many instances these diseases are much more communicable in the first days, the first few days, than they are later in the course of the disease. Under the ordinance, the ordinance can't work until there is a report of the contagion.

Q. That is the ordinance of the City of Chicago you refer to?

A. That is the ordinance of the City of Chicago, when that report is received at the Health Department, it is promptly transmitted to the milk dealer and he immediately discontinues carrying bottles back from that home; but the first few days, in many cases, is the most infectious period of the disease that is not covered, and bottles go back to the plant and are put into use again, they are handled by employes and the employes themselves may be subject to infection in that way, and then if the alkali concentration of the washer is not long or the chlorine is not up to standard for the time being there is that danger, which does not exist in the paper container.

Q. Did you have any experience when you were at the Board of Health with regard to tracing disease from glass bottles or to glass bottles and to the distributor or handler, milk man?

1434 A. Yes, that work came under my general direction.

Q. Can you recall one instance?

A. Yes, I do. I know there were a number of instances, but I recall one particularly in which a typhoid outbreak was traced to a milk wagon driver who proved to be a typhoid carrier. This was a definite instance of contamination of the pouring lip. In the end we decided that a rag which he used to wipe the bottles to make them look nice and shiny and clean was the particular source of transfer of typhoid organisms from his fingers, after he had been to stool, on to the pouring lip of the bottle; then the consumer opened the bottle and poured out over the lip, the organisms got into the milk in that way. That was a very interesting case that I know of from my own experience. However, there have been many such cases on record. I had occasion to look up the literature on that last week, I found some forty-five instances in the literature of similar instances.

Q. Have you an opinion as to whether that is possible in the matter of the use of the Pure-Pak Container?

A. I should consider it impossible, considering the protection of the pouring lip of the Pure-Pak Container.

Q. Do you know of any instance where the use of the Pure-Pak Container, the paper milk bottle in the 1435 case here has been the source or the means of spreading disease?

A. No. I have made inquiries, I have looked up literature in the libraries, I have been able to find no such instance.

The Master: Q. Of what?

A. Of a disease traceable to a paper container, single service paper container.

Q. You said something about wiping the pouring lip of the glass bottles?

A. Yes.

Q. Wouldn't there also be a necessity of wiping the pouring lip of the paper container?

A. I don't know why, and, besides, it is protected, it is covered for at least a half inch around.

Q. Doesn't it also get wet?

A. Those that I have seen have always been dry.

Q. The glass milk bottle is kept by the driver of the milk wagon in a box containing ice?

A. Yes, cracked ice.

Q. Isn't the paper container also kept in cracked ice?

A. Those I have seen have not been covered with cracked ice.

Q. How are they kept without cooling?

1436 A. I don't know whether they use dry ice or not, but they pack them and cover them; whereas, in the bottling plant they put the shovel full of cracked ice over the case just as soon as it leaves the bottling apparatus.

Q. That is in the case of glass bottles, you mean?

A. But in the case of paper containers, they are put in a paper carton about that size and covered and put away in the cold storage room. I haven't seen them finally delivered to a consumer, but I should think the logical way to do it would be in a wagon with dry ice.

Q. You don't know how it is done?

A. I have seen that particular angle. For instance, these that I purchased yesterday were in a separate ice box and there was no ice around the bottles at all.

The Master: Well, go ahead.

Mr. Gariepy: Q. As a bacteriologist and public health expert, Doctor, do you consider the standard rinse test of the American Public Health Association for milk containers equally applicable to glass containers as to paper containers?

A. Yes, I do from a sanitary standpoint and a public health standpoint.

Q. From your observation of the two containers 1437 in the two milk plants and your knowledge of the tests that are usually and customarily applied, as suggested by the American Public Health Association for testing milk containers, do you see any logical reason why public health officials should first visit the mill before they allow paper containers to be used when made from board that comes from that mill?

A. My feeling as to that is that it would be an unnecessary refinement.

Q. Why?

A. Although it might be done.

Q. Why?

A. Just because public health funds are not so ample, and much better results could be obtained by expenditure of public funds in other ways, for public health, than on something that is really not necessary.

The Master: He didn't ask you that. He asked why isn't it necessary.

Mr. Gariepy: Q. Why isn't it necessary to go to the mills?

A. Because of the triple sterilizing process through which the paper goes and the continued reduction of bacteria by drying on the paper and because the condition of the paper can be determined by a simple test, near 1438 the place where it is used. I refer to the rinse test or to the disintegration test.

Q. Do you consider the disintegration test on paper a more severe test than a rinse test that has been employed for years, as you know it, in the Board of Health in the City of Chicago, in order to ascertain the sanitary quality of the container?

A. Yes, decidedly more severe, in that the rinse test alone does not get all of the bacteria off of the bottle; you can rinse two or three times and still continue to get bacteria from the bottle; it is only a relative thing; whereas, the disintegration test brings out all of the bacteria present both on the surface and in the fiber of the paper, including those that are buried in the paraffin and rendered harmless by that method.

Q. Up to the time you left the Board of Health, Doctor, had disintegration tests been performed on any paper containers used in the City of Chicago for oysters, cheese or any liquids permitted sold?

A. No, they had not.

Q. What tests were performed by the Board of Health to ascertain the sanitary quality of paper containers permitted used in the City of Chicago, that you know of?

Mr. Schaefer: If the Master please, we have covered that by stipulation.

Mr. Gariepy: All right.

Q. Did you, Doctor, or anybody under your supervision or under your control, ever go to a paper mill or to a mill that makes any of these paper containers that were permitted use in the City of Chicago, to inspect such mill?

A. No.

Q. Or to inspect the methods and procedures employed at the mill for making the paper board?

A. No.

Q. Do you know of any one connected with the City of

Chicago, especially the Board of Health thereof, that ever did go to make such inspection at the mills or of the methods employed in making the paper used in these containers?

A. I don't. I have never heard of anybody going.

Q. Doctor, have you an opinion as to whether or not the bacteriological and sanitary hazard involved in the Pure-Pak Container, as you observed at the Chemung Plant being bottled, and the paper containers that were exhibited here this morning as having been purchased with milk in it from stores and restaurants, whether they differ any?

The Master: Read that question.

1440 (Question read by the Reporter.)

Mr. Gariepy: With regard to the bacteriological and sanitary hazard involved in either of them; do they differ any?

The Master: Now, read it all over again, and this last part, also.

(Question read by the Reporter.)

Mr. Gariepy: Q. Do you understand the question?

A. I think so.

Mr. Schaefer: Q. Did you say you had an opinion?

A. Yes.

Mr. Gariepy: Q. You may give it.

Mr. Schaefer: If the Master please, I object to that, again. We are back to the question of the containers and the use, which is prohibited.

The Master: I sustain the objection.

Mr. Gariepy: Q. Doctor, do you see any reason why, from a public health standpoint, it would be necessary for a public health official to visit mills that make paper board used in paper containers that are used for oysters and other liquids that are permitted use and sale of products in the city, such as ice cream, also?

A. I see no necessity in either case.

Q. Do you know that paper containers are used for the sale of ice cream?

1441 A. Yes.

Q. Did you at any time when you were connected with the Board of Health or in all of your experience, with regard to anybody making inquiry at mills concerning methods employed in making that paper board used in those paper containers for the sale of ice cream?

A. No, I did not.

Q. Did you perform any tests on those containers used for ice cream sales?

A. Some tests were made in the early days, particularly in connection with the counter freezers which are filled directly from the freezers in drug stores, to paper containers. Even those were merely the rinse tests for bacteria.

Q. Doctor, have you any interest in this lawsuit?

A. Interest?

Q. Yes.

A. No.

Q. Pecuniary, or otherwise?

A. No, except that I have an interest in public health. That is my career.

Mr. Gariepy: You may cross-examine.

Mr. Schaefer: I suggest that we adjourn now. It is twelve o'clock.

1442 The Master: We could proceed for thirty minutes.

Mr. Schaefer: I would rather not start cross-examination now. I feel that I could save time if we could recess now.

(Discussion off the record.)

The Master: Do you want to resume at 1:30?

Mr. Schaefer: That will be satisfactory.

The Master: We will resume at 1:45.

Mr. Schaefer: I think that would be better and it would save a lot of time.

(Whereupon the further hearing in the above-entitled cause was continued until 1:45 o'clock, p. m. on the same day, September 28, 1939.)

1443

• • (Caption) • •

Thursday, September 28, 1939,
1:45 o'clock p. m.

Met, pursuant to recess.

Present:

Mr. Gariepy, Mr. Rall, on behalf of plaintiff.

Mr. Schaefer, Mr. Horan, on behalf of defendants.

1444

The Master: You may proceed.

Mr. Gariepy: Take the stand, Doctor.

DR. FRED O. TONNEY, a witness called on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination (Continued) by Mr. Gariepy.

Q. Before you were excused this morning on direct examination, Doctor, I forgot to ask you two or three questions. Are you acquainted with the inspection performed by the Board of Health of the City of Chicago with regard to food establishments and drug stores selling food, as to the manner of the inspection, whether they inspect materials used in equipment?

Mr. Schaefer: That is objected to as immaterial to the issues here.

The Master: Food establishments?

Mr. Gariepy: Yes, sir. Restaurants, drug stores, dispensing food in the city.

The Master: I will sustain the objection. I don't see any materiality to that.

Mr. Gariepy: I offer to prove by this witness that he is familiar with that type of inspection, and that on such inspection performed by the Board of Health in restaurants, hotels, and drug stores serving food and liquids the inspector has occasion to notice and observe the type of receptacles used for the sale of food products, milk and other liquids, so that the city would have every reason to know and to exercise reasonable care as to the type of container used, whether glass, paper, or otherwise, and to object to them.

The Master: Q. How long since you have been with the Board of Health?

A. Since January, 1937.

Q. You have not kept up with the inspection requirements of the city during that time, have you?

A. Since that time?

Q. Yes. Various details.

A. No, not in detail.

The Master: I sustain the objection.

Mr. Garipey: Q. Doctor, I ask you, from a public health standpoint, whether you have an opinion in regard to whether or not any health hazard is presented in the matter of permitting the sale of ice cream in paper containers, oysters and cheese and other liquids, different than the health hazards, if any, existing in the sale of milk in a Pure-Pak container?

A. Yes.

Q. What is your opinion?

A. The hazard in both cases is not great, but that the hazard is less in the case of the Pure-Pak container, 1446 because of the manner in which it is handled, and because of the fewer people who handle it, and because of the short time for which it is exposed.

Q. Have you seen and are you acquainted with the type of containers being used in the city of Chicago for the sale of oysters, food and liquid drinks?

A. Yes.

Q. Do you know whether or not the Department of Health or the Board of Health of the City of Chicago or any employees or inspectors thereof ever inspect the glass plants that make glass milk bottles, for instance, the Owen-Illinois Glass manufacturing plant?

A. No such inspections were made when I was attached to the Health Department, and, so far as I know, not since, either. I see no occasion for it.

Mr. Garipey: That is all, Master.

If the Master please, I call Mr. Schaefer's attention to a matter in the pleadings where I think there is an inadvertence, which I think we can correct by stipulation, which he and I have agreed to, and which I think should be as follows:

That the plaintiff, Fieldcrest Dairies, Inc., now holds and possesses Permit No. 1521 from the Board of Health of the City of Chicago, permitting it to sell milk at whole- 1447 sale from its Chemung plant in the city of Chicago.

Is that correct?

Mr. Schaefer: If you will insert the word "unpasteurized."

Mr. Gariepy: Unpasteurized milk.

Mr. Schaefer: At wholesale.

Mr. Gariepy: At wholesale, in the city of Chicago.

The Master: I should think, however, that you should have a formal amendment to be filed in the Clerk's files, because I don't think you can amend pleadings simply by stating it in the transcript before the Master.

Mr. Schaefer: Off the record.

(Discussion off the record.)

The Master: Let the foregoing be entered as a stipulation of fact in this case.

Do you want to cross-examine now, Mr. Schaefer?

Mr. Schaefer: Yes.

The Master: Go ahead.

Cross-Examination by Mr. Schaefer.

Q. What is your present employment, Doctor?

A. I am a public health consultant and practicing physician.

Q. For whom are you a public health consultant?

A. Myself.

1448 Q. What is that?

A. Myself.

Q. Will you explain what you mean by that, Doctor?

A. I mean that I consult upon various public health problems.

Q. You mean, you consult with yourself?

A. No, I am employed by myself. I consult with whoever wishes to consult me.

The Master: Q. Who has consulted you since you became a public health consultant? How long have you been a public health consultant?

A. Since leaving the Health Department. I immediately opened an office for that purpose.

Q. From 1937?

A. Yes.

Q. Have you had any people who consulted you?

A. The latest one, since returning from Washington, was the Federal Trade Commission of the United States in connection with a litigation which occurred in Chicago re-

cently. Prior to that I have had other duties in various types of work, such as reorganizing a public health laboratory, for instance, consulting with civic clubs on public health matters, consulting with individuals, correspondence in connection with committees of various associations. That is about the picture.

Mr. Schaefer: Q. You mean they employ you, these civic associations?

1449 A. They have, yes. For instance, the City Club of Chicago?

Q. You have been doing that since January of 1927?

Mr. Garipey: 1937.

Mr. Schaefer: Q. 1937. I beg your pardon.

A. Yes, in connection with the private practice of medicine.

Q. When you were employed by the Federal Trade Commission, was that as a full time employee?

A. Yes.

Q. Then you did not do any outside work, such as public health consultant?

A. No. I was in Washington, D. C.

Q. That was full time employment?

A. Yes.

Q. How long did that last?

A. That interrupted my work as consultant.

Q. How long did that last?

A. Something like six months.

Q. I understood you to say on your direct examination that you made a survey of the incidence of bovine tuberculosis in cattle supplying milk to the Chicago area in 1927, is that correct?

A. I made two such surveys, the first in 1910 and the second, I think, in 1927 or 1926.

Q. In the 1927 survey my recollection is that you
1450 found three and one-half per cent of the cattle infected.

A. The raw milk supply.

Q. The raw milk supply?

A. The unpasteurized milk supply.

Q. Not of the cattle?

A. Not of the cattle. That was the milk. It came in on a percentage basis.

Q. Was there a compulsory tuberculosis examination of cattle in 1927?

A. Yes, it was made compulsory, I think, finally, about a year before that. There was quite a battle going on at that time to obtain that sort of control.

Q. You have not made any survey since 1927?

A. I have not made any survey since 1927, no. Of course, since that time there is complete control of bovine tuberculosis in Illinois. It being complete, there is hardly any occasion for it now.

Q. So that by now the three and a half per cent of supply contaminated does not exist?

A. We would not expect to find any at present.

Q. How many paper mills that manufacture paper for paper milk containers have you visited, Doctor?

A. None.

Q. At no time did you ever visit any paper mill manufacturing paper board?

A. No.

1451 Q. For milk containers?

A. No.

Q. Do you know anything, of your own knowledge, with respect to sanitary conditions in mills manufacturing paper board for use in paper milk containers?

A. No. I don't know just what you mean by sanitary conditions.

The Master: Q. Do you know anything of your own knowledge?

A. I have not inspected them myself. I have entered into discussions, read the literature on the matter, I have been interested in the matter, but I have not inspected the plants.

Q. Did you visit them?

A. No.

Mr. Gariépy: Q. Did you visit them? Answer that question.

A. No, I did not.

Q. You didn't go there yourself?

A. No, I did not.

Mr. Schaefer: Q. Do you have an opinion, Doctor, as to whether or not the sanitary conditions in a mill which manufactures paper board for use in paper milk containers are of any public health significance?

A. I have, from general knowledge.

Q. What is that opinion?

A. The opinion is that considering the numerous proc-

esses of sterilization which the paper goes through,
1452 that there is no significant public health problem from that point.

The Master: Q. I don't understand that answer. You say considering the sterilization processes that the paper goes through.

A. Yes.

Q. Where?

A. In the plant.

Q. In what plant?

A. In the first place, from general chemical knowledge I know just about what the process is in the paper plant. The first is the dissolving of the wood pulp by a strong alkalye and sulphur solution, which in itself destroys the germs.

Mr. Schaefer: Q. Doctor, you are answering my questions, you understand that, now?

A. Yes.

Q. Did you ever see pulp manufactured in a paper mill?

A. Not outside of a laboratory.

Q. The answer is no?

A. No, not in the manufactory, no.

Q. Did you ever see any sterilization effected in any paper?

A. From personal observation, no.

Q. Have you ever seen any sterilization of paper in any paper mill?

A. From personal observation, no.

Q. Are you aware that sanitary conditions in paper mills vary from mill to mill?

1453 A. I should think they would.

Q. Are you aware that they vary from day to day in the same mill?

A. I should think they would, to a certain extent.

Q. And from hour to hour?

A. Possibly. I should expect them to vary in a minor degree.

Q. Have you ever visited any plant in which the paper used in the manufacture of paper milk containers was cut, scored and printed?

A. No.

Q. Do you have an opinion as to whether or not sanitary conditions in such a plant are of any public health significance?

A. From general knowledge, I have.

Q. And that opinion, of course, is that they are of no public health significance?

A. No.

Mr. Gariepy: I object to that. He did not say that at all and I object to the form of Mr. Schaefer's question.

The Master: He is cross-examining.

Mr. Gariepy: I know, but he should ask him what his opinion is.

The Master: Overruled. What is your answer?

The Witness: A. I should say there is no essential public health problem.

1454 Mr. Schaefer: Q. What is your answer to the question that I asked you?

A. That there is no essential public health problem, no problem which is sufficient to require health officers at the point of using the paper product to inspect such plants.

Q. What is the operation in those plants?

A. Cutting, pasting, folding, printing of the paper sheets.

Q. Which comes first?

A. I presume they would vary in the plants.

Q. You don't know?

A. I would expect—no, I wouldn't know just which came first. I think it is non-essential.

The Master: That may be stricken. Whether it is non-essential or not is immaterial. Just answer his questions.

Mr. Schaefer: Q. Do you think the medical inspection of employees in such a plant is of any public health significance?

A. It may be of some significance.

Q. That is, it is?

A. Not of any great significance. It would be entirely minor.

Q. It is, however, of public health significance?

A. It may be of some public health significance, but minor, because of the time that would elapse and the
1455 drying process that occurs after the product leaves the factory.

Q. Now, what experiments have you conducted with respect to the drying process to which you refer, Doctor?

A. I remember experiments that I made, quite an extensive series, with books from the public library, with respect to various types of germs and the time of their survival in paper.

Q. When were those tests made?

A. That is a number of years ago. I would say it was along in the twenties somewhere. The problem was whether books could be returned from homes that had been quarantined or whether they should be destroyed. I found that there is a very decided reduction in bacterial content of paper. We contaminated these books with diphtheria germs, staphylococci, streptococci, and various germs. There is a very high death rate of germs upon paper. My recommendation was that the books be just simply washed and re-used.

Q. Washed?

A. Just for sanitary reasons, but not sterilized.

The Master: Q. Not what?

A. I say, but not sterilized.

Mr. Schaefer: Q. Now, what tests, Doctor—

1456 The Master: Let him finish.

Mr. Schaefer: I beg your pardon.

The Witness: I might add that one of our recommendations was that they be held for thirty days and be washed and put into service.

The Master: I don't understand that.

The Witness: For a circulating library.

The Master: Go ahead.

Mr. Schaefer: Q. What tests did you perform on those books?

A. Contaminated them with various organisms and then tested them from time to time for recovery of the organisms.

Q. How did you test them?

A. In various ways, depending on the organisms.

Q. For instance, what?

A. By wiping off the pages that had been contaminated. Some of the swabs were put into a bath. Some were put across plates, field plates, some across Loeffler's medium for diphtheria germs.

Q. What I am getting at, Doctor, is the method you used to recover.

A. Then an examination of them under a microscope or otherwise for their characteristic properties.

Q. You mean a direct examination of the book?

A. No, of the culture.

1457 Q. What I am getting at is the means that you employed to recover the bacteria from the book.

A. By wiping them with a damp swab. Sometimes we

cut sections of the paper away and deposited those in the culture medium.

Q. And then what did you do?

A. The culture was placed in an incubator for a proper length of time and after that microscopic examinations were made.

Q. At that time you were connected with the Board of Health of the City of Chicago?

A. Yes.

Q. And you were making recommendations?

A. In charge of the laboratories.

Q. Doctor, if we both talk at once we won't get very far. You were an employee of the Board of Health at that time, weren't you?

A. Yes.

Q. And you were making this study in that capacity, is that correct?

A. That is correct.

Q. And at that time you recommended that the books be not re-used but be isolated for a period of thirty days, is that right?

A. That is my memory. Approximately thirty days, and then re-used.

Q. Now, with respect to dairies at which paper 1458 containers are filled with milk, how many such plants have you visited?

A. Two.

Q. Those are the two to which you testified?

A. You mean paper?

Q. Yes.

A. Yes, two.

Q. And these are the two to which you referred on your direct examination?

A. Yes.

Q. How many visits did you make to the Fieldcrest Dairies?

A. One.

Q. And how many visits to Borden-Wieland Dairy?

A. One.

Q. And how long did you remain at the Fieldcrest Dairies?

A. About half a day.

Q. And how long at the Borden-Wieland Dairy?

A. A similar period.

Q. Now, you testified that you were impressed by the general sanitary appearance of the Fieldcrest dairy?

A. Yes.

Q. That general sanitary appearance to which you testified is a factor which may vary from day to day?

A. Somewhat.

Q. It may entirely vary from day to day, as a matter of fact, may it not?

A. I suppose it could.

1459 Q. And, of course, it may vary from plant to plant?

A. Yes.

Q. And does vary from plant to plant, does it not?

A. If you want my personal observation, it did not vary in these two plants that I saw.

Q. Now, answer the question, Doctor. We can understand what it is. I say, it may vary?

A. I think it may.

Q. From plant to plant?

A. I think it may.

Q. The significance, the sanitary significance of white uniforms worn by employees in a dairy is primarily due to the fact that those uniforms may be washed and due to the fact that it is of sanitary significance that the employees do not wear their street clothing, is that correct?

A. Yes; and I should add a third one, and that is that dirt is visible on the white garments.

Q. Those are required generally in dairies in Chicago, aren't they?

A. Yes, that is true.

Q. What type of filling equipment was used in the Borden-Wieland plant?

A. A vacuum cup, with an opening on the top of the carton.

Q. So as to save time, will you compare that type of filling equipment with the type used for filling glass
1460 bottles?

A. Well, it is essentially the same, in that the filling is done through the pouring lip. However, the difference is that the pouring lip is only raised for a few seconds in the case of the paper container, whereas the pouring lip is out in the open for some time in the case of the glass bottle container before it is filled.

Q. Now, do you know as a fact whether there are paper containers which use filling equipment identical with that used in filling glass bottles?

A. I have heard of that.

Q. Do you know whether or not there are paper containers which use a plug lip, which is identical with that used for filling glass bottles?

A. Yes, I have seen them. I have purchased them in various cities.

Q. Now, with respect to the equipment used in filling that last type of paper container, is there any difference between the possibility of contamination of that type of container during the filling process and the possibility of contamination of the glass bottle during the filling process?

Mr. Gariepy: I have an objection to that, Master. I confined the doctor's testimony to the two plants and 1461 two types of containers he saw, and nothing with regard to this other type, which apparently is the conical type, that counsel is asking about.

The Master: I will let him answer. Testing the witness' knowledge on this general subject.

The Witness: A. As to the filling process itself, if you do not include the washing and preparation, it would be the same.

Mr. Schaefer: Q. The screening requirements of the Chicago Board of Health are rather elaborate and detailed, aren't they, with respect to milk plants?

A. Yes, they are.

Q. Did you see any flies at the Fieldcrest dairy?

A. No, I did not.

Q. Not any at all?

A. Not in the filling equipment. I am inclined to think that was due to the dryness of the atmosphere.

Q. Did you see them any place else?

A. Yes, I saw them around the plant.

Q. If flies at the Fieldcrest dairy were in the storage room, there would be the same possibility of contamination in the paper container?

A. In the storage room?

Q. Yes.

A. No. The paper containers are all sealed in the storage room. What do you mean, the empty containers? 1462

Q. No, I mean this: You may not be able to answer this, Doctor. Do you know whether or not a package of paper containers is always exhausted during a run, or whether they have containers left over?

A. They do have them left over.

Q. Just as they have glass bottles left over?

A. Yes.

Q. After a run?

A. I saw them left over and returned to the carton and carried up to the storage room.

Q. The possibility of contamination applies there the same as the possibility for contamination of the glass bottle after sterilization?

A. No, because of the fact that milk is around the glass bottles and moisture, which is not present around the paper container, moisture particularly.

Q. Did either of the machines get damp while you were there?

A. No.

Q. What do you mean by the pouring lip of a milk bottle?

A. The surface over which the milk is poured from the container by the ultimate consumer.

Q. So that we will have a uniform definition, it has been phrased in this way by other witnesses. Will you
1463 listen and see whether or not you agree with this definition. The pouring lip of a milk bottle or container is that surface of a bottle or container with which milk comes in contact when being poured?

A. I would agree with that.

Q. Now, what tests did you make to determine the pouring lip of a Pure-Pak container?

A. Observation.

Q. Sir?

A. Observation, from pouring, actual pouring.

Q. Will you explain how you did it, by actual pouring?

A. I took some of them home. The family used them.

Q. You took some of them home, and what?

A. The family used them. I watched them lift it and pour it out in this manner (demonstrating). In fact, I was very well impressed with the protection of that pouring lip.

Q. Have you ever heard of that method of determining the pouring lip of a milk container advanced by any scientist?

A. I don't know whether I have discussed it. It is rather observing. I do not know of any better way of testing it than to do it.

The Master: Q. Testing it for what?

1464 A. To pour the milk from the container and see what part of the container comes in contact with the milk. I don't know of any other way of testing it.

Mr. Schaefer: Q. That is the only way you know of?

A. Yes.

Q. Now, there are paper containers, I think you said, which used the same type of disk cap?

A. I have seen them, yes.

Q. To which you referred on your direct examination, as being employed in glass milk bottles, is that correct?

A. Yes, I think so.

Q. The possibility of contamination from the pouring lip of those paper containers is the same as the possibility from the pouring lip of a glass bottle, isn't that right?

A. Yes, exactly.

Q. Did you test the pouring lip of the containers sold from the Borden-Wieland plant?

A. Yes.

Q. The milk put up in those containers is poured across the corner of the container, which is unprotected, is that correct?

A. That is correct. There is a sanitary difference in that bottle, however.

Q. Just a minute. I didn't ask you about that.

Mr. Gariepy: Don't say anything else, Doctor.

1465 The Witness: All right.

Mr. Schaefer: Q. As a matter of fact, the degree of protection of the pouring lip in the case of the glass bottle varies with the shape of the lip of the bottle and with the type of cap employed, doesn't it?

A. I would say with the type of cap employed. I don't think there is enough variation in the lip itself to make any difference, but I think it does vary with the type of cap.

Q. Did you ever perform any experiments to see whether or not it does vary with the type of lip?

A. No.

Q. That is just a guess?

A. Well, it is rather obvious. The portion near the cap is the portion the milk is going to be poured over.

Q. And the shape of the lip, in your opinion, makes no difference with respect to the area of the pouring lip?

A. I think it might make some difference, but not a great deal.

Q. The same factors influence the degree of protection of the pouring lip in the case of the paper container, do

they not? Well, let me rephrase it. The degree of protection of the pouring lip in the case of a paper container depends upon the shape of the container and the type 1466 of covering used?

A. Type of covering rather than the shape, I would say. The type of covering, principally.

Q. How would you go about tracing the outbreak of a contagious disease to the use of paper containers for milk?

A. The epidemiological procedure is, first, to visit the cases, and all possible data bearing upon the source of the disease is recorded, including the source of the water supply, the source of the milk supply, recent banquets, picnics, recent vacations, all information possibly bearing upon the source of the epidemic.

The Master: Q. Let us get down to the point. If you wanted to examine the paper container in which the man received the milk, you could not do it, could you, because the container is not around any more, isn't that right?

A. No.

The Master: All right.

The Witness: It is done epidemiologically, as I started to tell you. In the case of an epidemic, it would soon narrow itself down to, first, the milk dealer and the names of the cases would appear in his customers, and then following it down further it would appear upon the route, 1467 perhaps, if it were the case of the driver, but in that way, by studying the cases and finding one common source, the epidemic is traced.

Mr. Schaefer: Q. Did you conduct any rinse tests of paper containers, Doctor?

A. Personally, no. They were done, however, from time to time under my direction.

Q. What is that?

A. They were done from time to time under my direction, not of milk but of other paper containers.

Q. You have never made any rinse tests of any paper containers containing milk?

A. Not personally, no.

Q. Have you ever made any disintegration tests?

A. No.

Q. You referred to a triple sterilization process, Doctor, in your direct examination this morning. What do you mean by that?

A. In a paper plant. In the first place, the dissolving

of a pulp in a strong alkali, which is of itself at rather high temperature and a sterilization process.

Q. Let me ask you right there, suppose the pulp is disintegrated by mechanical means, what happens to that method of sterilization?

A. It would depend on what temperature it is 1468 done under. It would depend entirely on the temperature.

Q. When it is done by mechanical means?

A. Yes.

Q. I see. Go ahead.

A. If it is done at a high temperature, it would be sterilized, otherwise not, unless caustic chemicals were present.

Q. Yes.

A. The next procedure is the reprecipitation, which again—

Q. Is what?

A. The reprecipitation of the pulp.

Q. What do you mean by that?

A. The first process dissolves the pulp with a strong alkali, and then an acid is added to reprecipitate it, and then the pulp is washed and rolled out at a high temperature into thin sheets. The high temperature of the roller is, again, a sterilizing process.

Q. Did you ever perform any tests on paper which came off the roller of a paper mill, to ascertain the bacteriological content of such paper?

A. I have not conducted such tests.

Q. Milk is an essential item in the diet of infants, is it not?

A. Certainly.

Q. And children.

A. Yes.

Q. Are oysters an essential item in the diet of in- 1469 fants?

A. No.

Q. Children?

A. No.

Q. How about Coca-Cola?

A. Not essential. Commonly used.

Q. Why is there no occasion for the inspection of plants at which glass bottles are manufactured, by public health officials?

A. Because the product necessarily in its finished state, when the manufacturing process is finished, must be free of germs, or practically so, just as in the case of a paper container when it is just finished.

Q. Does the absorbency or non-absorbency of the glass bottle make any difference with respect to whether or not it is important from a public health point of view to inspect the mill at which the glass bottles are made?

Mr. Gariepy: There is no contention made that the glass bottles are absor'ent, Master.

The Master: Let him answer.

The Witness: A. I think it would make very little difference, because germ life will attach itself to impervious surfaces. There would be a similar hazard in both instances.

The Master: Now, he is not asking you about 1470 other instances. Just confine yourself to his question.

Mr. Schaefer: I am glad to have the doctor show his interest, if the Master please.

Q. Now, you first learned of this litigation how long ago?

A. Several weeks.

Q. You learned of it from a clipping in the newspapers?

A. Yes, sir.

Q. And you volunteered to testify here because of your very considerable experience with paper containers?

A. My experience in public health, general knowledge of containers.

Q. Your experience with paper containers at that time, your own experience, was absolutely nothing, was it not?

A. I have had experience with paper containers on other things than milk.

Q. Just a minute, Doctor. Your experience with respect to paper containers for milk, at the time you volunteered your services in connection with this case, was absolutely nothing, is that correct?

A. That is not correct.

Q. Now, you have testified that you had no experience with respect to paper mills.

A. That is true.

Q. Is that correct?

A. Yes.

1471 Q. And you have had no experience with respect to conversion plants, is that correct?

A. That is true.

Q. And your experience with respect to the two dairies at which the paper containers were filled with milk was acquired subsequent to your volunteering your services in this litigation, is that correct?

A. All of it? No.

Q. Now, which plant did you visit prior to the time you volunteered your services in this litigation?

A. I did not visit a plant. These are personal experiences in other cities.

Q. I am asking for your personal experience.

A. Yes, in other cities.

Q. In inspecting plants?

A. Pardon me?

Q. At which paper containers are filled with milk.

A. My first experience in paper containers was in being at places—

Mr. Schaefer: Just a minute. I ask that the witness answer the question, Master.

The Master: Yes. Read the question.

(The record was read by the reporter as above recorded.)

The Master: Put your question over again.

Mr. Gariepy: There are two questions there, Master.

1472 The Master: Yes. Ask one question, not two.

Mr. Schaefer: Q. What dairy at which paper containers were filled with milk for distribution did you visit prior to the time you volunteered your services in this litigation?

A. I did not visit any dairy.

Q. All right.

A. But I experienced—

The Master: Doctor, you have answered the question.

Mr. Schaefer: You have answered the question now.

Mr. Gariepy: Just a minute, Doctor. Just answer his questions.

Mr. Schaefer: Q. Now, your personal experience with respect to the manufacture, processing, handling and filling of milk containers at the time you volunteered your services in connection with this litigation was absolutely nothing, is that correct?

A. That is incorrect.

Q. Now, what personal experience had you had with

the manufacture of paper board for the use of paper containers, prior—

The Master: Paper containers of what?

Mr. Schaefer: Paper containers for milk.

Q. (Continuing.) —prior to the time you volunteered your services here?

A. In the purchase of milk in such containers in 1473 the city of Washington and city of New York.

Mr. Schaefer: I move to strike that as not responsive, Master.

The Master: That is not responsive. Read the question.

(Mr. Schaefer's last question was read by the reporter as above recorded.)

The Witness: A. Referring to the handling, the purchase—

The Master: No, read the question again.

Mr. Gariepy: Just listen to the question and answer it.

(Mr. Schaefer's last question was again read as above recorded.)

The Witness: A. None.

Mr. Schaefer: Q. What personal experience had you had with respect to the cutting, printing, scoring of paper for use in paper containers for milk, prior to the time you volunteered your services in this litigation?

A. None other than general knowledge.

Q. In other words, none, no personal experience?

A. Not personal.

Q. Now, what personal experience had you had with respect to the plants at which paper containers are 1474 filled with milk for distribution and sale, prior to the time you volunteered your services in this litigation?

A. None, other than general knowledge.

The Master: The latter part may be stricken. He only asked you what your personal experience was.

Mr. Schaefer: Q. Then, as a matter of fact, Doctor, at the time that you volunteered your services to testify in this case you had had no personal experience with the manufacture of paper board for use in paper milk containers and with the subsequent handling and processing of that paper board and with the filling of the milk containers with milk, is that correct?

A. If you confine me to personal observation, that is correct.

Q. Now, Doctor, do you have any secret sources as to

the available literature on the subject of the sanitary aspects of milk containers?

A. No.

Q. The only knowledge you have of that literature is knowledge that is available to anyone who studies it, is that correct?

A. Or who attends conventions and listens to discussions.

Q. You sat here during the hearings on this matter 1475 or during the hearings in this case on how many separate days, Doctor?

A. I would not know offhand. Perhaps a half dozen. You would know as well as I, no doubt.

Q. You had some difficulty, Doctor, with Dr. Kegel, was it, a former commissioner of the Health Department of the City of Chicago?

A. At one time, yes.

Q. And you employed attorneys at that time?

A. No.

Q. You did not?

A. No.

Q. You consulted with attorneys at that time?

A. No.

Q. Now, with how many health commissioners have you had difficulties, in addition to Kegel?

A. I have had differences of opinion as to policy with Dr. Bundesen from time to time.

Q. Now, with whom was your difficulty at the time I met you when Mr. Chandler was representing you?

A. I am sorry, I have forgotten that. It is true, I did consult him in the case of Kegel.

Q. That was in connection with Kegel?

A. Yes. I had forgotten that. I am sorry.

Q. That was when I met you, isn't that right?
1476 A. Yes. That was a very brief incident.

Mr. Gariepy: What year was it? Let us get the time.

The Witness: About 1930.

Mr. Schaefer: Off the record, please.

(Discussion off the record.)

Mr. Gariepy: Kegel was health commissioner of the city here, was he?

Mr. Schaefer: Q. His name is Arnold Kegel, is it not?

A. I think so.

Q. K-e-g-e-l?

A. That is right.

Q. As a matter of fact, you bear considerable personal ill will towards Dr. Bundesen, don't you?

A. No, I don't. I bear no ill will.

Q. You bear no ill will whatever?

A. No.

Q. You have pending a suit against the city of Chicago for reinstatement by the Board, as an employee of the Board of Health, is that correct?

A. No. I dropped that suit.

Q. Is it not a fact, Doctor, that the suit is still pending?

A. Well, if it is, I don't know it.

Q. You filed such a suit, did you not?

A. Yes, I did.

Q. You have made charges of incompetency and
1477 malfeasance in office against Dr. Bundesen at various times and places, have you not?

A. Not that I remember, in such words as that. I have criticized some of his acts, because I thought they were wrong. I have told him so himself.

Q. And you have told other people so, at various times and at various places, is that correct?

A. I may have discussed some of these policies, as a matter of fact I am sure I did, with some of the scientific men in town, on matters that I considered of great importance to the public health.

Q. As a matter of fact, in the suit that you filed in 1937 you charged that Dr. Bundesen was personally responsible for your removal?

A. I think I did, at that time.

Q. As an employee of the Board of Health?

A. I think I did, and I think that is true.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. As a matter of fact, they abolished the office, Doctor, that you held at the Board of Health at that time, is that right?

A. That is right.

Q. And this suit that Mr. Schaefer refers to was
1478 a suit for reinstatement?

A. Exactly.

Q. He asked you concerning visiting milk plants and milk dairies previous to the time that you testified in this cause or offered your services to testify in this cause.

A. Yes.

Q. Did you visit milk plants?

A. Prior?

Q. Yes.

A. Yes, very often.

Q. Do you know of any reason, from a bacteriological standpoint or public health standpoint, why the rinse test as used upon paper containers permitted for food and other liquids in the city of Chicago should differ from a rinse test as permitted upon paper containers for milk?

A. I see not difference in general applicability.

Q. What is the object of the rinse test on either of them, Doctor?

A. To get a relative idea of the number of bacteria on the inside of the container, on the inner surface.

Q. When you were at the Fieldcrest Dairies plant in Chemung, Illinois, Mr. Schaefer asked you with regard to what your observation was concerning a package of blanks, unfilled and uncreased containers there. Did 1479 you see a package partly filled and partly used there in operation?

A. Yes, I did.

Q. And what did you see happen to that container while you were there?

A. I saw the attendant put the material back into the original carton and close it up and send it away.

Q. And where did he take it, do you know?

A. I understand it was taken back to the storage room.

Q. Now, this matter of variation in the degree of sanitation at the plaintiff's plant, the Chemung plant, as compared with the matter of variation and the degree of sanitation that you would expect to find in a glass milk bottle plant: what is that based upon, this degree of variation which he asked you about, that you would expect to find from time to time?

A. Well, it is based upon the degree of openness of the processes, the number of employees that handle the containers and the mechanical system of opening and filling, which in the case of the paper container I thought was much superior to the opening and filling of glass containers.

Q. Does the number of inspections performed by the inspectors for the Board of Health have anything to do with the degree of sanitation existing from day to 1480 day, the quality of sanitation?

A. Of course, the theory of inspection is a punch-up.

Q. By that you mean what, Doctor, so we understand how you are using that phrase?

A. It is keeping the plant on its toes. They don't know when the inspector is going to be there. Of course, the inspector can't be there every hour of the day, and the point is that the employee does not know when he is going to come in.

Q. So there would be no safeguard such as watching the degree of sanitation existing all the time?

A. Not all the time. However, that is the purpose of inspection, a punch-up.

Mr. Gariepy: That is all, Doctor.

Mr. Schaefer: That is all.

The Master: You are excused.

(Witness excused.)

Mr. Gariepy: Mr. Dean, there was just one thing that Mr. Schaefer asked you about that I would like to bring out.

1481 S. E. DEAN, JR., recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. Mr. Dean, do you know the practice at the Che-mung plant, at the Fieldcrest dairy, concerning the use of the cardboard carton of blanks in the machine when it is partly used and partly unused and the run is through? What do you do with it?

A. We received instructions from the—

Q. Not that you received instructions. What do you do?

A. We fold back the top of the carton and seal it with a piece of sealing tape.

Q. Then what do you do with it?

A. Return it to the storage room.

Q. So there is not any condition or circumstance under

which these blanks in these brown fiber cartons are left hanging around the place? .

A. No.

Mr. Gariepy: That is all.

Mr. Schaefer: No questions.

(Witness excused.)

1482 Mr. Gariepy: Just one more witness, Master, who will be very short.

FRANK H. BERGMAN, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, please.

A. My name is Frank H. Bergman.

Q. And your address, please?

A. 171 West Madison street. Do you want my home address?

Q. Yes.

A. 3009 Leland avenue.

Q. And your business and occupation?

A. Manager.

Q. Manager of what?

A. Of a restaurant.

Q. What restaurant?

A. 171 West Madison street.

Q. Whose restaurant is that?

A. Mr. D. L. Toffenetti's.

Q. How long have you been manager of that restaurant?

A. About three or four weeks.

Q. How long have been manager of any Triangle restaurants in the city of Chicago for Mr. Toffenetti?

A. Seventeen to eighteen years.

Q. Seventeen or eighteen years?

1483 A. Yes, that is right.

Q. And your duties as manager are what?

A. Of everything, the whole dining room.

Q. I show you a paper container (handing container to the witness). Is that a paper container from the Triangle restaurants?

A. That is right.

Q. Have you, as manager of Triangle restaurants, ever received any instructions from the Board of Health of the City of Chicago that you are not to use these paper containers in the sale of milk?

A. Never that I know of.

Mr. Schaefer: I object to that, if the Master please.

The Master: I will let him answer.

The Witness: A. I don't remember.

Mr. Gariepy: That is all.

The Master: What was that?

Mr. Gariepy: He doesn't remember.

The Witness: That would go to our main office.

Mr. Gariepy: Q. But you have never had any?

A. No, I could not tell you of any.

Mr. Gariepy: That is all, Mr. Bergman.

The Master: Any questions, Mr. Schaefer?

Mr. Schaefer: That is all.

1484 The Master: Thank you. That is all.

(Witness excused.)

The Master: Are you through now?

Mr. Gariepy: There is one question on the depositions in here with regard to the matter of the hazard, if any, from the oxidation of paraffin. Have you gone into that with Dr. Arnold, Mr. Schaefer, whether there is any or not?

Mr. Schaefer: Yes. Off the record.

(Discussion off the record.)

Mr. Gariepy: With the exception of the depositions and the proof on that item, which apparently was a hiatus in the East when the deposition was taken and never cleared up, the plaintiff rests.

Have you been over the depositions, Mr. Schaefer?

Mr. Schaefer: No. The answer then is that the plaintiff does not rest.

Mr. Gariepy: Except that point in the depositions, we want to clear that up. If we cannot agree with you on it, we want to put on some proof.

The Master: When will you be ready to go ahead, Mr. Schaefer?

Mr. Schaefer: When the rest of his proof is in.

Mr. Gariepy: That is all there is, the depositions
1485 and that.

The Master: How long will that take?

Mr. Gariepy: We can get somebody here tomorrow to clear that up. I don't want this left high in the air, that

there is any health problem by reason of the oxidation of paraffin at high temperatures.

The Master: Off the record.

(Further discussion off the record.)

The Master: This matter will proceed, on behalf of the defendant, on October 11th at 10 o'clock, and I will also put down the 12th, but we will see then how far you get along on the 11th, as to whether we go on on the 12th.

Mr. Schaefer: That is agreeable.

The Master: I will put it down for the 11th, 12th, and 13th of October, and if it is not necessary to go on on the 12th, we will go on again on the 13th, anyway.

Mr. Schaefer: That is agreeable.

The Master: This will be continued then, subject to call from Mr. Gariepy as to when he will put in his remaining testimony, which I understand will not take very long.

Mr. Schaefer: We can give you a call some late afternoon and come in here.

1486 Mr. Gariepy: Yes. We will try to let you know a day or two in advance.

The Master: Very well.

(Whereupon the hearing in the above entitled cause was continued to 10 o'clock a. m., Wednesday, October 11, 1939, subject to call for the purpose of putting in additional evidence on behalf of the plaintiff before that date.)

1487

• • (Caption) • •

Friday, October 6, 1939,
2:00 o'clock, p. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan,
Counsel of record.

1488 The Master: Are you ready to proceed?

Mr. Rall: We are ready. Mr. Gariepy has asked me to interrogate the witness, because this point arises out of some depositions taken in New York that I attended.

HOWARD R. PETERSON, was called as a witness on behalf of the Plaintiff, having been first duly sworn, testified as follows:

Direct Examination by Mr. Rall.

Q. Will you please state your name?

A. Howard R. Peterson.

Q. Where do you live?

A. 5543 Kimbark Avenue, Chicago, Illinois.

Q. What is your business or occupation?

A. Engineer, Standard Oil Company of Indiana.

Q. What is your title, or in what department are you?

A. Engineer, Technical Department.

Q. For the record, what is your age?

A. 41 years.

Q. Did you attend a college?

A. I did.

Q. What was your college training?

A. Undergraduate work at the University of Paris and Nebraska University.

1489 Q. Did you receive any degrees from there, any of those institutions?

A. I did.

Q. What degree did you receive?

A. Bachelor of Science, University of Nebraska.

Q. Following what, what was your training?

A. Post graduate work, chemistry and chemical engineering, University of Chicago.

Q. During what period?

A. 1934 to 1938.

Q. Following your graduation from the University of Nebraska, in what business or profession did you engage?

A. For six months, Statistician, State of Nebraska; beginning January 1, 1923 with the Standard Oil Company of Indiana.

Q. Just in brief, what has been your experience with that company, so far as your occupations have been concerned?

A. I served as salesman, engineer and technical engineer.

Q. How long have you been in the technical department?

A. Three years and ten months.

Q. Does the Standard Oil Company manufacture, among other products, paraffin wax?

A. Yes, sir.

1490 Q. Are you acquainted with the chemical properties of paraffin wax, according to the U. S. Pharmacopoeia XI definition of the melting point, American melting point of from 125 to 127 degrees F?

A. Yes, sir.

Q. Are you also acquainted with the point at which and the time within which such paraffin wax commences to oxidize?

A. Yes, sir.

Q. Will you describe briefly what you mean by the term oxidation of paraffin wax?

A. The oxidation of paraffin wax refers to the chemical combination of oxygen with the petroleum hydrocarbons; the chemical combination of oxygen with the petroleum hydrocarbons.

Q. Is the oxidation rate of paraffin wax rapid or slow?

A. The oxidation rate of a refined paraffin wax is characterized by an initially high resistance to oxidation, following which oxidation is comparatively rapid.

Q. The rate of oxidation, as I understand it, depends upon the length of time to which the wax is exposed to heat, is that true?

A. That is correct, in the presence of oxygen.

1491 Q. In the presence of oxygen?

A. Yes, sir.

Q. Using any convenient number of degrees, will you give us the time at which paraffin wax commences this process of oxidation?

A. A refined paraffin wax, held at 210 degrees F. has an initial resistance to oxidation of about twenty hours, during which time no oxidation occurs.

Q. Taking higher and lower temperatures, can you tell us the length of time that it would take, that these processes would take to commence?

A. That is dependent upon the temperature coefficient of oxidation of refined wax, which is about fifteen degrees. In other words, if the temperature is increased by fifteen degrees, the rate of oxidation doubles. If the temperature is decreased by fifteen degrees, the rate of oxidation is reduced to one-half.

Q. At 195 degrees temperature, when would oxidation commence?

A. After approximately forty hours.

Q. At 225 degrees, it would take what time to commence?

A. After approximately ten hours.

Q. At 180 degrees?

A. After approximately forty hours.

1492 Q. Every fifteen degrees reduction of temperature, from 180 degrees down, would practically double the length of time before the oxidation process commences?

A. That is correct.

Q. Are you acquainted with the Ex-Cell-O Machine?

A. Yes, sir.

Q. Did you make certain practical tests on the machine with paraffin wax of this description at the Ex-Cell-O Plant in Detroit?

A. I did.

Q. When was that?

A. In the spring of 1939, I don't recall the exact month.

Q. What was the purpose of the test?

A. To determine the suitability of certain waxes in these machines.

Q. In other words, you were seeking to convince Ex-Cell-O that it should permit the use of wax of your manufacture by its licensees in these machines?

A. That is correct.

Q. Was the wax which you used within the definition that I have given you?

A. Yes, sir.

Q. And in your testimony when you refer to refined paraffin wax, you refer to wax of the description and
1493 definition that I gave?

A. Yes, sir.

Q. About how much paraffin wax at one time does the Ex-Cello-O Machine hold?

A. By absorption between 50 and 60 pounds.

Q. Did you make any calculations at the time you were there as to the factor of safety, taking into account the length of time in which the wax was in the chamber and the temperature at which it was held, as to the oxidation process?

A. I did.

Q. What was your result?

A. That a very large factor of safety exists, possibly

in the neighborhood of four hundred or five hundred percent.

Mr. Rall: You may cross-examine.

Cross-Examination by Mr. Schaefer:

Q. What is the difference between an engineer and a technical engineer, Mr. Peterson?

A. There are efficiency engineers and a great many other types of engineers. I should say a technical engineer is an engineer who specializes in sciences, 1494 in the exact sciences.

Q. An engineer who is not a technical engineer does what?

A. In the case of efficiency engineers, perhaps it is in the field of social science, and yet they are termed engineers.

Q. What is the relation between the oxidation of paraffin and the melting point of paraffin?

A. I think the only connection between the two is this—that oxidation in the molten state is much more rapid than in the solid state; consequently, more rapid oxidation would occur in a low melting point wax such as 125 or 127 A. M. P., at 127 degrees than would occur at the same temperature of a wax which were solid at the same temperature. In other words, the two waxes, one may be solid at 125 and the other may be liquid at 125. The one which is liquid at 125 would oxidize more rapidly at 125 than the one which were solid at the same temperature. At temperatures above the melting point, I know of no connection or correlation between the two.

Q. The paraffin which you have described is United States Pharmacopoei melting point 125, is that the paraffin you have been talking about?

A. 125-127 A. M. P.

Q. Melted paraffin of that type, at 125 degrees 1495 will oxidize, will it not?

A. It will, after the initial induction period.

Q. How did you determine the period of initial resistance to oxidation?

A. By exposing the wax to 210 degrees F. for the period of time in question in the presence of air.

Q. What physical means did you use?

A. A test for peroxides. Peroxides are the first evi-

dences of the chemical combination of oxygen with the petroleum hydrocarbons.

Q. Just go ahead and describe what you did, if you will, Mr. Peterson?

A. The test for peroxides consists of the use of ferric sulphate and thio cyanate, in the presence of peroxides a deep red color is formed; in the absence of peroxides no color is formed.

Q. In what is the color formed?

A. The mixture of ferric sulphate, thio cyanate and the wax, and if peroxides are formed in the wax, a deep red color results; in the absence of peroxides no such color is formed.

Q. How did you expose your paraffin in that experiment to 210 degrees F?

A. That is exposed in an open beaker.

1496 Q. About the size and shape of a water tumbler, approximately?

A. 600 to 800 cc's.

Q. Shaped how?

A. With the sides parallel.

Q. Round in shape?

A. Round in shape.

Q. How much paraffin did you put into that?

A. Between 600 and 800 cc's.

Q. That is you filled it up?

A. Yes, sir.

Q. Then what did you do?

A. Exposed it to 210 degrees in a water bath, taking samples from it at regular intervals.

Q. So that I can clear this up as I go along, you mean you put that beaker into water?

A. In the water.

Q. Heated to temperature of 210 degrees F.?

A. That is correct.

Q. You did not submerge it completely?

A. No contact between the paraffin and the water, that is correct.

Q. You held it at that temperature for the length of time you have indicated?

A. And longer, taking samples at regular intervals; withdrawing samples from the beaker at regular intervals.

Q. How did you take your samples?

A. How are the samples taken from it?

Q. Yes.

A. By being dipped in a clean container, dipped from it in a clean container.

Q. Then what did you do with your samples?

A. Tested it with the peroxide test solutions that I have just referred to.

Q. You have seen the operation of the Pure-Pak Machine, have you not?

A. Yes, sir, in the factory.

Q. Yes.

A. Yes, sir.

Q. Was that running containers through the paraffin bath at the time that you observed it?

A. Yes, sir.

Q. At what rate do you remember were they running during that bath?

A. At a rate of between fifteen hundred and two thousand per hour. I can't give it specifically.

Q. As each container went into that bath, it went in in an inverted position, did it not?

A. I prefer not to answer that. I don't remember.

1498 Q. Was the paraffin bubbling all of the time?

A. No, sir. Bubbling?

Q. Yes.

A. I don't understand the meaning of the word "bubbling" in this connection. If by that you mean boiling—no.

Q. I don't mean boiling. You described what you saw on the Ex-Cell-O Machine?

A. The molten paraffin is, of course, somewhat agitated by the procession of containers through it.

Q. It is also agitated, is it not, by the fact that the containers come in inverted, carrying with them a quart of air, each quart container?

A. That is possible.

Q. That means in the actual operation very substantially more oxygen is in contact with the paraffin and in contact at different positions than was the case in the experiment which you conducted?

A. That is possible.

Q. That is true, assuming that the container goes in, inverted, as I stated—which you don't know?

A. That is correct.

Q. That paraffin, in addition to being agitated by the procession of containers—is that correct?

A. That is correct.

199 Q. So that in that respect the operation of the machine differs substantially from your experiment?

A. From that particular experiment, yes.

Q. That is in your experiment the paraffin was not agitated?

A. That is correct.

Q. And there was no air induced into the paraffin below the surface?

A. That is correct.

Q. So that you had one constant surface remaining exposed in your experiment?

A. That is correct.

Q. In actual operation of the machine the paraffin is constantly being agitated by the procession of containers through the paraffin bath?

A. It is.

Q. And also air is being introduced below the surface of the paraffin?

A. I can't answer that.

Q. What other kinds of paraffin are there, in addition to the U. S. P. type which you have described?

A. There are paraffin waxes below the minimum melting point of the U. S. P. There are waxes above the maximum melting point of the U. S. P. There are waxes which do not conform with the color, regardless of the U. S. P., 1500 and there are waxes which do not conform with the said acid requirements of the U. S. P.

Q. What are the variations in the melting points of paraffin?

A. The maximum variations are between approximately 105 and 180.

Q. Is Hexacontane a paraffin?

A. It is a paraffin.

Q. It has a melting point of 215.6 degrees F., is that right?

A. You asked me if it was a paraffin. It is, but it isn't a wax, necessarily.

Q. I didn't ask you that. It is a paraffin?

A. A paraffin, yes.

Q. It has the melting point which I mentioned?

A. According to the chemical definition of paraffin, there is methane paraffin, which is gas.

Q. And that has a melting point how far below zero?

A. Approximately 200, but I don't remember the exact figure. It is far below zero.

Q. It is far below zero?

A. Yes.

The Master: You say it is far below zero?

A. Far below, yes.

Mr. Schaefer: Q. What are the principal components of U. S. Pharmacopoeia paraffin such as you have described?

A. The principal components of U. S. Pharmacopoeia paraffin are hydrocarbons of the paraffin series with between 24 and 30 carbon atoms.

Q. How many hydrogen atoms?

A. They conform to the formula C_nH_{2n} plus 2.

Q. That paraffin contains tetracosane?

A. I don't remember the carbon atoms in tetracosane.

Q. Twenty-four?

A. Then it does.

Q. Does that contain hexacotane, that would be 27?

A. It does. These are generally referred to by the number of carbon atoms.

Q. Yes.

A. Yes.

Q. Will you explain the process of oxidation, what happens?

A. That is the chemical combination of oxygen with the petroleum hydrocarbons.

Q. The initial period of resistance which you described varies with the degree of temperature applied to the paraffin?

A. Yes, sir.

Q. It varies with the amount of oxygen with which the paraffin is in contact?

1502 A. Yes, sir.

Q. With what else does it vary?

A. Time, temperature and exposure.

Q. How about contact with other active mechanical substances, in addition to oxygen?

A. By that you refer to catalysts, I presume.

Q. That is correct.

A. Catalysts may accelerate oxydation. Catalysts

accelerate oxidation of hydrocarbons of the paraffin series to a slight extent, much slighter extent than hydrocarbons of the other series.

Q. Catalysts are themselves products of the oxidation of paraffin?

A. They may or they not be.

Q. Where else would they come from?

A. Metals will serve as catalysts, metalist metals with which the paraffin is in contact.

Q. From what other sources?

A. I know of no other than the two referred to.

Q. Have you described the produces of oxidation of paraffin?

A. Have I described them?

Q. Here—I don't believe you have. Would you do that?

A. The products of oxidation of paraffin, to my
1503 knowledge, have never been isolated; consequently, their physical contents have not been determined.

Q. Has their general nature been determined?

A. The classes to which they belong have been determined.

Q. To what classes do they belong?

A. Alcohols, esters, ketones, paraffin lactones.

Q. Generally, those products are acid?

A. Yes.

Q. Do they have an odor?

A. Some do.

Q. What type of odor is that?

A. The product of oxidation of a paraffin wax results
in a rancid odor.

Q. Do they have a taste?

A. Yes.

Q. What type of a taste is that?

A. It is distinctive, but I don't know what it tastes
like.

Q. One of the products of oxidation is succinic acid, is that correct?

A. It might be.

Q. That is a pungent odor?

A. As I recall it—it has.

Q. While we are dealing with the matter of odors,
1504 will you describe the odor of the paraffin bath heated?

A. The odor of a heated paraffin bath is entirely depend-

ent upon whether the paraffin has been exposed to high temperatures over a long period of time or not. A fresh paraffin bath heated ~~to~~ 160 degrees or 180 degrees has a distinctive sweet paraffin odor, very milk. If that same bath were held at that temperature for many days beyond the induction period of the wax, it would assume a rancid odor.

Q. Assuming that paraffin is added to the paraffin bath of an Ex-Cell-A Machine in a hard state, as made necessary by the paraffin removed, taken out by the containers as they go through, how would you describe the odor from such a paraffin bath?

A. As a very mild characteristic sweet paraffin odor.

Q. Now, assume that that bath was not emptied but that paraffin was simply added to it as needed, how would you describe the odor?

A. That would entirely depend upon the rate of consumption, if you have, for example, 100 pounds of wax in a bath, and the consumption is one pound per day, the time of exposure to the temperature in question would be enormous. If the same bath contains 100 pounds, and 1505 the rate of consumption is 100 pounds per hours, one might expect a complete turn over in volume each hour, the time of exposure, therefore, being very short.

Q. Yes, of course, that complete turn over in volume would not mean a complete replacement of all of the paraffin?

A. No. That may be true. In other words, a small amount might be recycled or remain until the next hour, perhaps.

Q. Or even until the next week, possibly, is that right?

A. But a continually reducing quantity, a continually diminishing quantity.

Q. According to the natural probabilities?

A. That is correct.

Q. You have not conducted any experiments to determine how much paraffin remains in a paraffin bath and how much is taken out, have you?

A. I dare say that could not be determined. One could not separate the wax that was put in at nine o'clock from that that was added at ten o'clock.

Q. So the machine that you visited at Detroit was not actually used in a dairy?

A. No, sir, it was in the factory.

1506 Q. Have you ever seen one in operation in a dairy?

A. No, sir.

Q. What was the odor up there in the factory?

A. I recall no unusual odor.

The Master: Q. Do you recall any odor?

A. I don't recall. Had there been an unusual odor I undoubtedly would have observed it. I recall none.

Q. Unusual, of course, depends on what you have been smelling right along.

A. I have my office at South Michigan and odors are not unusual.

Mr. Schaefer: Q. Did you perform any experiments to determine the time of the initial period of resistance to which you referred in paraffin in actual operation, paraffining containers?

A. I don't believe I understand the question.

The Master: Read the question.

(Question read by the Reporter.)

A. Those experiments have only been performed with similar wax, but not with the wax actually used at the plant.

Q. You performed none under actual operating conditions?

1507 A. No, sir.

Mr. Schaefer: Q. Where wax was re-used and you had the accumulated presence of products of the prior oxidation of paraffin?

A. In an Ex-Cell-O Machine we have not.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Rall.

Q. Are the acids that result from oxidation of paraffin wax of this description liquids or solids?

A. Most of them are solids at room temperature.

Q. Assuming that paraffin wax had oxidized to some extent and a paper container was immersed in it and then cooled, in what form would any acid that resulted from oxidation then be?

A. In the form of a solid with the wax.

Q. What general family or type of acids are these that you refer to?

A. Organic acids.

Q. Will you tell the Master briefly, and for the record, the difference between organic and inorganic acids?

A. Organic acids are those resulting from organic compounds. Inorganic acids are those from inorganic compounds.

1508 Q. Will you give us some examples of each type?

A. Inorganic are nitric acid; sulphuric acid; hydrochloric acid; hydrofluoric acid. Organic acids are malic acid, citric acid, propionic acid, butyric acid, lactic acid.

Q. The inorganic acids are generally those that we consider dangerous or harmful acids?

A. Very much stronger.

Q. How would you describe the acids which would result from paraffin, with respect to their strength?

A. Extremely weak.

Q. The edible acids, for instance lactic acid, is an edible acid, isn't it?

A. It is found in edible products.

Q. Citric acid is edible?

A. Yes, sir.

Q. Those are organic acids?

A. That is correct.

Q. You observed the operation of the Pure-Pak Machine at least in general when you were there in Detroit, did you not?

A. Yes, sir.

Q. Taking into account whatever agitation of the paraffin bath there may be in practical operation, and taking into account the possibility of that inserting empty
1509 containers brings a larger amount of air in contact with the paraffin than in the experiments you performed, taking into account the volume of the paraffin bath, assuming for this question the temperature ranging from 180 to 195 degrees F., and taking into account the fact that the paraffin does come in contact with metal in the Pure-Pak Machine; do you have an opinion whether, considering all these elements, paraffin wax oxidizes in the operation or in the process of the manufacture, that is, the paraffin coating of Pure-Pak Containers?

A. I do have an opinion.

Q. What is that opinion?

A. That it does not.

Q. What is done with the paraffin, if you know, at the end of the run?

A. It is removed from the machine.

Mr. Schaefer: I object to that. The witness in response to my questions said he had never seen the operation at any time.

Mr. Rall: We will withdraw that, then.

The Master: I want to see what the witness knows. Read the question back.

(Question read by the Reporter.)

Q. How do you know that?

1510 A. At the end of the runs that were made in the factory, the wax was removed from the machine before closing the plant at night.

Q. What factory are you talking about?

A. The Ex-Cell-O Corporation.

Q. Did you see it done?

A. I saw the clean machine the next morning and was told that it had been removed and cleaned the night before. I have not; as I previously stated, observed these machines in operation in a dairy.

The Master: I will let it stand as to what he does know about it.

Mr. Rall: Q. In adding paraffin to the Pure-Pak Machine, what is the mechanics of doing it?

Mr. Schaefer: That is objected to.

The Master: Read that question.

(Question read by the Reporter.)

Q. Do you know anything about it?

A. I observed it at the factory, I observed that.

Mr. Schaefer: That, if the Master please, if it is the only time the witness has observed it, is of no significance here.

The Master: Limit it to what he observed.

Mr. Rall: Q. Limit it to just what you did observe?

1511 A. That was not in a dairy, I observed that, a ten-pound cake of wax was added to a container that might be described as a melting container; the wax, after being melted in this container, went into the dipping compartment.

Q. Would you call that a pre-heater?

A. It might be termed a pre-heater.

Q. What, from observation, did you conclude was the approximate capacity of the machine in pounds of paraffin?

A. Fifty to sixty pounds.

Q. Do you know the approximate amount of paraffin used per hour for the number of cartons from 1500 to 2000 that the machine was running when you observed it?

A. The engineers in charge of the machine stated that 30 pounds of wax per 1000 containers was desired and the tests were conducted on that basis and the containers weighed after the test to determine if they all contained approximately that amount of wax.

Mr. Schaefer: If the Master please, I move to strike that answer. I move to strike it on the ground that it depends upon hearsay.

The Master: Yes. It may be stricken.

Mr. Rall: Q. Did you, following the tests, weigh containers to determine the amount of wax which they had absorbed?

1512 A. I observed the weighing of the cartons prior to waxing; I personally marked on each container or carton the weight. I observed the weighing of the cartons after waxing and again personally marked the weights.

Q. Taking a thousand cartons, what were the sizes of the cartons?

A. One quart.

Q. Taking a thousand with those figures that you had, what is the approximate weight of the paraffin wax result from the operation that you observed?

A. It varied between 28.6 and about 31.

Q. Pounds?

A. Pounds per 1000 cartons.

Q. So that if the paraffin in the machine was approximately 60 pounds, each thousand containers would use approximately half of it?

A. That is correct.

Q. And two thousand an hour, they would use about 60 pounds of paraffin an hour?

A. That is correct.

Q. And if the rate were slower, they would use less?

A. That is correct.

Q. When you described the odor of the paraffin bath in the Ex-Cell-O Machine which you observed as a
1513 typically fresh sweet paraffin odor, you mean that there was no trace of rancidity or any trace of an odor which you could identify as being a product of oxidation, is that correct?

A. That is correct.

Q. Was there at any time during the operation of the machine that you observed, any odor which would indicate oxidation of the paraffin?

A. No, sir.

Q. I believe you testified that if the paraffin had been exposed long enough to a great enough temperature so that it did oxidize, a person could smell the rancid odor resulting from oxidation?

A. That is correct.

Mr. Rall: That is all.

Recross-Examination by Mr. Schaefer.

Q. You testified that the acids which were products of oxidation would be solid at 40 degrees F. In what form would they be at 160 degrees F?

A. The various acids formed from oxidation vary within rather wide limits as to their solid point. Some may be solid at 40; some might be solid at 160.

Q. And some might be liquid at 160?

A. That is correct.

1514 Q. There is an odor comes from paraffin upon heating before oxidation begins, is that correct?

A. A very slight distinctive odor.

Q. When you refer to edible acids, you were referring to acids which were edible in quantities normally found in the foods that you described?

A. That is correct.

Q. Such as lemons, et cetera?

A. Yes, sir.

Q. You did not mean to infer that the acids themselves were ordinarily considered as edible?

A. That is correct.

Q. Is paraffin produced to comply with the United States Pharmacopoeia Standard relatively expensive to produce?

A. Relative to what?

Q. Relative to other types of paraffin?

A. If by that you refer to producing a wax which will conform to the U. S. P. Standards, as contrasted to a wax of similar melting point which will not—the difference is relatively small, the difference in production costs are relatively small.

Q. Is it relatively cheaper to produce wax which conforms to the United States Pharmacopoeia Standard?

A. It is relatively more expensive.

1515 Q. When you were at the Ex-Ceill-O Plant, how many containers were there that you weighed there?

A. Twelve containers were weighed from each run.

Q. How long was the run?

A. A run perhaps consisted of one hundred containers.

Q. How many runs did you weigh containers?

A. Three.

Q. So that you weighed thirty-six containers?

A. That is correct.

Q. You weighed them before they were immersed in the paraffin?

A. That is correct.

Q. Were their weights uniform?

A. Within rather narrow limits.

Q. What were the limits?

A. I don't recall.

Q. Do you recall the weight of the containers unparaffined?

A. I do not.

Q. You conducted that experiment to determine the amount of paraffin that adhered to the containers?

A. The test was conducted to determine the suitability of three different waxes for this type of service, in order to duplicate plant conditions it was desirable that the same amount of wax be added to the containers or
1516 to the cartons as is added in actual plant operation or practice.

Q. In the course of your experiment you determined the amount of wax added to the containers?

A. Yes, sir.

Q. Is that amount uniform?

A. I think I stated that it was between 28.6 and 31 pounds per 1000 containers; that is quite uniform.

Q. How did you compute that in terms of per thousand containers?

A. The weighing device is calibrated in terms of one thousand containers.

Q. Do you mean you placed one container on it and you read in terms of per thousand?

A. Read in terms of one thousand, that is correct.

Q. Actually, you tested only twelve with each type of wax?

A. That is correct.

Q. Was that scale also calibrated so that you could weigh the amount of wax adhering to the container, in terms of one container?

A. It can be by dividing it by one thousand, dividing the result by one thousand.

Q. The scale itself?

A. The scale itself is calibrated in terms of one thousand containers and can be read on that scale.

1517 Mr. Rall: Just one question that I should have asked before.

Redirect Examination by Mr. Rall.

Q. You stated on cross examination that this description of paraffin wax with a melting point of 125 to 127 will oxidize at that melting point. I understood you to add: After it had reached the induction point, as you called it, or past the resistance time.

A. That is correct.

Q. And about how long, according to your experiments, would it take paraffin wax, at the temperature of that melting point, 125, to commence the process of oxidation?

A. At what temperature?

Q. At 125.

Mr. Schaefer: I submit, if the Master please, that that question is impossible to answer, because of the witness' prior testimony as to the other factors that have to be taken into consideration.

The Master: Let us see if he can answer.

The Witness: A. There are other tests as well as the one described through which the induction period is determined; one consisting of a bomb, in which the molten wax is placed, and held at a predetermined temperature, 1518 under oxygen pressure, with a gauge to measure the oxygen pressure. When the oxygen pressure, as measured on the gauge, begins to fall, it indicates that the oxygen is being chemically combined with the wax. Until such time it indicates that no oxidation or chemical combination is occurring.

Mr. Rall: Q. Are those tests matters of general knowledge in your field?

A. Yes, sir.

Q. What do those tests show with respect to the, would you say, oxidation coefficient? Is that what you describe as this 15 degree difference?

A. Would you kindly read the question again?

(Mr. Rall's question was read by the reporter as above recorded.)

A. Those tests show that refined paraffin waxes have a reduction period, at 210 degrees F, at about 20 hours, meaning that under the conditions of that test, with oxygen being under pressure, no oxidation occurs until the passing of 20 hours.

Q. Which is substantially the result obtained in your tests that you described?

A. Yes, sir.

Q. Would this oxygen, being under pressure, form a better contact between the paraffin and the oxygen than the test that you described?

1519 A. Yes, sir, and, in addition, it is pure oxygen, rather than air.

Q. Do you have any way of comparing the conditions of that test with respect to the oxygen getting in or being available to get into the paraffin, comparing that test, and the agitation of the paraffin bath, and the induction of air in the empty container Mr. Schaefer referred to?

A. The bomb tests are generally considered to be more severe than actual conditions in practice.

Q. Because of the fact that the oxygen is pure and that it is fed to the paraffin under pressure?

A. Correct.

Mr. Rall: That is all.

Mr. Schaefer: That is all.

(Witness excused.)

Mr. Gariepy: Mr. Dean, take the stand, please.

Mr. Schaefer: What, do we have another witness now?

Mr. Gariepy: You have raised some question, Mr. Schaefer, concerning this man's knowledge of actual conditions, of the machine and the paraffin and leaving old paraffin and taking it out, so we might as well clear those things up.

Mr. Schaefer: Are we going to go ahead with an
1520 additional witness now?

Mr. Gariepy: This is in connection with the oxidation of paraffin and in connection with the cross examina-

tion of this witness concerning actual conditions and knowledge of actual conditions at the Fieldcrest plant.

The Master: Cross examination of which witness?

Mr. Gariepy: No, this is Mr. Schaefer's cross examination of Mr. Peterson, who just left here.

The Master: Go ahead.

S. E. DEAN, JR., recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. You are Mr. Dean, president of Fieldcrest Dairies?

A. That is correct.

Q. You are acquainted with the operation of the Excell-O machine at your plant in Chemung, Illinois?

A. I am.

Q. And how many quart containers are put through that machine, under ordinary operating conditions, per hour?

A. That machine is rated at approximately 36 per 1521 minute. You have shut-downs when you change from one size container to another, and possibly due to some other conditions, I don't know right now what they might be, but we figure we have an average of about 30 containers per minute.

Q. Which would be 1800 per hour?

A. Eighteen hundred per hour.

Q. And how big is the paraffin bath, how many pounds of paraffin does it hold?

A. It holds 110 pounds.

Q. And how do you buy the paraffin? In cakes of what weight and size?

A. The paraffin is cast in molds of eleven-pound cakes or twenty-pound cakes. We use the eleven-pound cakes, because they are easier to handle.

Q. Are you acquainted with the operation of the paraffin bath, with regard to how the cakes are put in and how often they are put in the bath, when the machine is operating?

A. I am.

Q. And how many pounds are put in when the machine starts in the morning on the first one?

A. One hundred and ten pounds, to fill the bath.

Q. And then how long after you fill the bath the first time and you run off, do you put another insertion of
1522 paraffin in the machine for the bath?

A. The Ex-Cello-O machine has a float control attached to the paraffin bath, so that the operator by watching that float control can tell when the paraffin supply is getting low in the tank. In actual operation the machine operator, just from his knowledge of the machine itself, can tell about how often a cake of paraffin is required, and he will look at his float control to justify his own judgment on the thing, and put a cake in. They are needed right through the run, using approximately thirty pounds per thousand containers.

Q. And when you are through with the run, Mr. Dean, or through with the runs during the day, what happens to the machine, with regards to the paraffin bath and the paraffin that is left in?

A. The machine is shut off and we draw off the molten paraffin into a galvanized metal tank or can, whatever you choose to call it. The paraffin bath is sloped on the bottom, so that you get a complete drainage of it, and being in a molten state, of course, there is not much paraffin left, except possibly a little on the sides.

Q. It is cleaned out?

A. It is cleaned out.

Q. And is that done after each running, at the
1523 end of the day?

A. That is correct.

Q. You have observed those conditions at your plant since you have been operating the machine?

A. I have.

Mr. Gariepy: Take the witness, Mr. Schaefer.

Cross-Examination by Mr. Schaefer.

Q. What do you do with the molten paraffin, after you put it in the galvanized tank?

A. Let it cool and we use it over the next day.

Q. How do you get it out of there?

A. We have a plug. You mean, the paraffin out of the tank?

Q. Yes.

A. It is just a square pan and we tip it upside down

and the paraffin falls right out. It is a tank approximately of the same cast as apparently the molds that are used for forming paraffin molds in the paraffin plant.

Q. There would be about 110 pounds of paraffin, wouldn't there, to go into that tank?

A. No. When we get down close to the end of the day's run, naturally we let our paraffin bath go down, in accordance. There is no use melting paraffin just for the 1524 sake of melting it.

Q. So you won't have 110 pounds in it?

A. That is right.

Q. How much will you have in it?

A. I would not be able to tell you exactly. I would estimate 40 pounds.

Q. And you put those into a mold of the size of paraffin molds, as they originally come to you?

A. Approximately the same size.

Q. Those are eleven to twenty pounds, you said?

A. Yes. That is, you can buy paraffin in one of two sizes, eleven or twenty pound cakes.

Q. How do you put approximately 40 pounds of paraffin into this container, which is of the same size and shape as an eleven-pound mold?

A. I would have to describe the paraffin bath to you to enable you to visualize it.

Q. You will not have to describe the paraffin bath to me to enable me to visualize that particular matter. What I want to know is how you get approximately 40 pounds of paraffin into the same size and shape as an eleven-pound paraffin mold.

A. Of course, it is thicker and deeper.

Q. Then it is not the same shape?

A. So far as the outside measurements are concerned. In other words, an eleven-pound cake of paraffin is about, I would judge, fifteen by twenty-five or thirty inches, and it is only about two inches thick. Now, the paraffin chamber which is used in the Ex-Cell-O machine has a door of about, I would say, eighteen inches wide and possibly a foot high. Maybe two inches up from the bottom, at the level of the door, is a series of rollers. You put your cake in there and then the heat is applied, and it melts it enough until it runs down to a stainless steel strainer, and it strains it enough to go into the ultimate bath. There is enough room in there so that we could

place four or five cakes, I should judge offhand, in there, one on top of the other, in loading the machine.

Q. You shut down when you change containers. When else do you shut down the machine?

A. When else?

Q. Yes.

A. If a container should be scored improperly, so that it did not go through the folding operation correctly, it would become jammed in the operation where the bottom is glued together and the machine automatically shuts down and you have a jam.

Q. Where do they usually jam; before the paraffin bath or after?

A. I know of no possible way a container could
1526 jam after the paraffin bath. It is in a continuous chain from then through the machine.

Q. Because at that time it is fully formed?

A. Yes.

Q. The jamming occurs before it gets to the paraffin bath?

A. Yes.

Q. And when that occurs the machine shuts down, is that correct?

A. That is right.

Q. And then what is done?

A. The operator reaches in there and removes the damaged carton and pushes the starting button and she goes on again.

Q. When you shut the machine off or when you have it shut down, that stops the movement of the continuous belt, is that correct?

A. That is correct.

Q. How is your heat furnished to the paraffin bath?

A. Steam.

Q. Does that operate independently of the rest of the machine?

A. That is right.

Q. So that shutting off the machine to remove a jammed container will not affect the supplying of steam to the paraffin?

A. No.

Q. That portion of the machine in which the containers are glued and shaped is enclosed?

1527 A. No.

Q. It is not enclosed?

A. No.

Q. The enclosure begins with the paraffin bath?

A. That is correct. I would like to add this in connection with that paraffin bath operation. When the machine shuts down, you naturally have some cartons which are in various processes of being paraffined at the time. There is a gate, so-called, on the side of the paraffin bath, so that when the machine shuts down for any particular reason the cartons which are in the paraffining operation can be removed and dropped back into the very start of the paraffining operation.

Q. How are they removed?

A. Just by hand.

Q. You reach into the paraffin bath?

A. That is correct.

Q. How do you get those out that are immersed in the paraffin?

A. You don't. You have to turn your machine around, if you want to take those out. Those that are actually in there would not be damaged in the least. They come out of the paraffin dipping part of the tank in baskets and are reconveyed up over the top of the machine in this heated chamber and brought around to complete the circle, and then dropped on a conveyer which takes them through the cooler.

1528 Q. That gate that you open to the paraffin bath permits air to enter that heated chamber that you described, doesn't it?

A. No.

Q. Why doesn't it?

A. Because it is a self-closing door. Theoretically, if there is a vacuum in there, you pull air through it. I think to all intents and purposes there is little if any air getting through there.

Q. The door, being open, would affect the temperature in the heating chamber that you described, obviously, wouldn't it?

A. I think not measurably, Mr. Schaefer, no.

Q. You don't know whether it would be measurably or not, do you?

A. Only from an intelligent survey of a thing like that. I don't know by looking at the thermometer whether it is affected.

Q. The temperature outside is what?

A. Room temperature. It varies from season to season.

Q. Those containers that are taken out of the paraffin bath, you say, are put back in?

A. That is right.

Q. By hand?

A. That is correct.

Q. And then they go back into the paraffin bath?

A. That is correct.

1529 Q. They do not receive uniform application of paraffin with other containers, do they?

A. They receive a double paraffining treatment.

Q. They receive a different paraffining treatment?

A. That is correct.

Q. It may be double or it may not be double, is that correct?

A. I assume probably that is correct. I would like to say one thing.

Q. They may become impregnated with paraffin to a considerably greater degree than containers that go through in the normal course of operation of the machine, is that correct?

A. I would not be able to answer that.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. Mr. Dean, during the past year how often have you been to the plant while the machine is in operation, filling milk?

A. Possibly a dozen times.

Q. Have you at any time ever noticed any unusual or offensive odors that might be called rancid odors, about the machine?

A. No.

1530 Q. Have you ever detected anything like that?

A. No.

Mr. Gariepy: That is all.

Recross Examination by Mr. Schaefer.

Q. The paraffin that you take out of the machine when the run is finished at the end of the day is used again the following day?

A. That is correct.

Mr. Schaefer: That is all.

Mr. Gariepy: That is all.

(Witness excused.)

The Master: I would like to ask Mr. Peterson a question.

HOWARD R. PETERSON was recalled as a witness on behalf of the plaintiff, having been heretofore duly sworn, resumed the stand and testified further as follows:

Examination by the Master.

Q. Is there any oxidation which can go on at ordinary temperatures, room temperatures?

A. My previous answer contemplated that, when 1531 I stated that the temperature coefficient of oxidation is 15 degrees. In other words, if the induction period or period during which no oxidation occurs at 210 degrees F is 20 hours, then at 15 degrees less than that, or 195 degrees, it would be 40 hours; at 180 degrees it would be 80 hours; at 165 degrees, it would be 160 hours—I believe that is correct—and continue in that fashion, doubling for each reduction of 15 degrees in temperature, until the solid state is reached.

Q. Let us get down to a practical situation here. Assume now that one of these paraffined paperboard containers had milk in it and is left on the back door step of some apartment and the sun gets to shine on it for several hours, is there any oxidation in the paraffin?

A. There would be in many hundred hours, after many hundred hours there would oxidation occur.

Q. Would there be any, say, inside of six hours?

A. None whatever, sir.

Q. Under a blazing sun?

A. None whatsoever, sir.

The Master: That is all.

Mr. Gariepy: Q. And these 40-hour, 80-hour and 20-hour periods that you refer to means 20 hours of actual exposure to that temperature?

1532 A. That is correct.

Mr. Gariepy: That is all.

Mr. Schaefer: Q. How do you account for the oily feeling that characterizes a paraffined paper container?

A. One of the characteristics of paraffin wax is a distinctive oily feeling. It is not due to the presence of oil, as such, in the wax. In other words, paraffin hydrocarbons of the 24 to 28 carbon atom series have a distinctive oily feeling.

Mr. Schaefer: That is all.

(Witness excused.)

The Master: Are you ready to finish up now?

Mr. Rall: We have depositions, but I think we are agreed, subject to your approval, that Mr. Schaefer will point out on the physical deposition what it is that he is objecting to, and then you can rule into the record, without our having the depositions read orally here, if that meets your approval. We each have copies of them. The originals are on file with you.

The Master: How is he going to indicate right on the face of the deposition? Just write it in in longhand, you mean?

Mr. Schaefer: The objection is already there, I think, in every instance, but how we can indicate your rulings, I do not know, unless we physically X out the question and answer. I could not answer that.

The Master: You can leave it in and I can rule later on when it becomes necessary. You can call attention in your summing up to the objections that you have, so that I can rule on them at the time I come to write my report, if it is necessary. A great many of these objections go to matters that sort of wash themselves out and do not make any difference in the ultimate result.

Mr. Schaefer: I have found that in going over the depositions, so I have just very few objections which I would want to urge to you.

Mr. Rall: Why don't you, for the record now, indicate what those objections are, and after the Master has read the depositions cannot he indicate in the record which are sustained, referring to the page numbers of the depositions?

The Master: Off the record.

(Discussion had off the record.)

The Master: Let the record show that the depositions taken at New York, New York, April 25, 1939, before Irvin Taber, and the depositions taken at Philadelphia, Pennsylvania, April 27, 1939, before Lewis A. Bicking, are 1534 offered in evidence by the plaintiff and received, sub-

ject to the objections attached to the original depositions by the defendants.

Now, I take it that your proofs are closed, Mr. Gariepy.

Mr. Gariepy: Right.

The Master: Then the case is now continued to the date heretofore set.

Whereupon the hearing of the above entitled cause was continued to 10 o'clock a. m., Wednesday, October 11, 1939.

1535 • • (Caption) • •

Wednesday, October 11, 1939,
10 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

1536 The Master: Are you ready to proceed?

Mr. Schaefer: Yes, sir. This witness has not been sworn, Master.

PAUL F. KRUEGER, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. What is your name, please?

A. Paul F. Krueger.

Q. Where do you live, Mr. Krueger?

A. 4914 North Francisco Avenue, Chicago.

Q. And what is your occupation?

A. I am chief sanitary officer of the Chicago Board of Health.

Q. How long have you held that position?

A. About a year and a half.

Q. Was that a Civil Service position?

A. It is, and I am a Civil Service employee.

Q. Prior to the time when you were appointed chief sanitary officer of the Board of Health, what was your position?

A. I was director of the Bureau of Dairy Products of the Chicago Board of Health.

Q. And for how long did you hold that position?

1537 A. I held that approximately two years.

Q. When did you first become associated with the Board of Health of the City of Chicago?

A. I accepted a position of Assistant Director of the Bureau of Dairy Products on a Civil Service appointment in 1928.

Q. Prior to that time what was your occupation?

A. I was milk sanitarian of the State Department of Health at Springfield for a little over two years.

Q. And prior to the time when you were milk sanitarian in the State Department of Health, what was your occupation?

A. I was a foreman in a large milk pasteurization and bottling plant in Chicago.

Q. What were your duties there?

A. I had most of the positions in the dairy, either performed by myself, such as milk bottle washing, operation of milk bottle washing equipment, operation of milk bottle fillers, operation of pasteurization equipment, manufacturing of buttermilk, washing and cleaning of equipment, and all of the positions, or practically all of the positions in the institution, and then afterwards was foreman, directing men doing that work in the establishment.

1538 Q. Prior to the time when you were employed in that dairy, what was your occupation?

A. I was instructor in a high school township high school, at Sesser, Illinois.

Q. For how long did you teach at that high school?

A. One year.

Q. What subjects did you teach?

A. I taught science, agriculture, drawing.

Q. Did you attend any college, Mr. Krueger?

A. Yes. I am a graduate of the University of Illinois, College of Agriculture, at Urbana, Illinois, graduating there in 1923 with final honors.

Q. What degree did you receive?

A. Receiving a B. S. degree, Bachelor of Science.

The Master: Q. What do you mean by final honors?

A. They have preliminary honors and final honors.

Mr. Schaefer: Q. Have you written any articles which have been published pertaining to the sanitary aspects of the production, processing and distribution of milk?

A. Yes, I have written a number of articles.

Q. Where were they published?

A. They were published in the Illinois Health News, Illinois Journal of Medicine, the annual reports of the International Association of Dairy and Milk Inspectors, in the Journal of Milk Technology and in the Journal of the American Public Health Association.

Q. To what did those articles pertain?

A. Those articles pertained to the inspection of milk supplies, the operation of a mobile milk laboratory, the pasteurization of milk, the use of phosphatase tests to determine proper pasteurization of milk, the proper construction of milk pasteurization equipment and the development of high temperature short-time pasteurization.

Q. Are you a member of any societies or associations of public health officials?

A. I am a member and past president of the International Association of Dairy and Milk Inspectors, now called the International Association of Milk Sanitarians, and a member of the American Public Health Association.

Q. What were your duties as milk sanitarian with the State Department of Health?

A. I had charge of all of the milk inspection activities of the State Department of Health, helping cities and communities in the state in the passage of milk supervision legislation, and directly in charge of the milk pasteurization plant law of Illinois, which requires that all milk pasteurization plants in the state meet certain requirements, which included the promulgation of the necessary requirements for those plants and the actual inspection of those plants.

Q. What is the Milk and Milk Products Sanitation Advisory Board of the United States Public Health Service?

A. The Milk Products Sanitation Advisory Board is a board of sixteen men selected from various parts of the United States by the Surgeon General of the United States Public Health Service, to assist the Service in drawing up suitable milk control regulations for use in communities of the United States and to assist in other problems in connection with the proper handling of milk and milk products.

Q. Are you a member of that board?

A. I am.

Q. For how long have you been a member?

A. Approximately three years.

Q. What are your duties as chief sanitary officer of the Board of Health of the city of Chicago?

A. My duties are to enforce the ordinances and regulations of the city of Chicago and the Board of Health with respect to the inspection and supervision of Chicago's 1541 milk supply and food supply and the enforcement of ordinances and regulations with respect to the proper installation of plumbing, ventilation, in establishments in the city of Chicago, and proper maintenance of community sanitation in the city.

Q. How is the Bureau of Milk Sanitation of the Board of Health of the city organized?

A. It is divided into two divisions, the country dairy inspection division and the city dairy inspection division.

Q. What is the function of the country dairy division?

A. The function of the country dairy inspection division is to inspect each one of the thousands of farms that supply the city of Chicago with milk and milk products, and to inspect the receiving stations and milk plants outside of Chicago which receive milk and sell it in Chicago, to insure the proper compliance with all of the ordinances of the city of Chicago and rules and regulations of the Board of Health pertaining to such establishments.

Q. What is the function of the city dairy inspection division?

A. The city dairy inspection division inspects all of the milk pasteurization plants which sell milk to the city 1542 of Chicago and the collection of samples of milk and milk products from those establishments, and as it is sold, and the inspection of—oh, I think that covers it.

Q. Do they inspect the pasteurization equipment in those plants?

A. A routine inspection is made of the pasteurization plants as to the proper construction of the plants to conform to the necessary requirements, the inspection of the equipment in those plants, the operation of such equipment, the health of the employees in the plants and the proper delivery and distribution of the milk.

Q. What is the procedure employed by the Board of Health with respect to the inspection of the bottle washing equipment of milk plants in which milk is bottled?

A. The inspectors visit regularly each milk pasteurization and bottling establishment in the city. Those inspections are made once or twice a week, but at least every two.

Q. What do they do at those plants?

A. They inspect the operation of the equipment used for

washing and disinfecting the milk bottles. They take the temperatures of the various solutions used. If it is 1543 water, hot water, they get the temperature of the hot water and the temperature of the alkali solutions, make the necessary tests to see that they are made of the strengths of alkali solutions used and the chlorine solutions, if they are used, and inspect the proper mechanical construction and operation of the bottle washing equipment in use.

After they have made their inspection of that equipment and operation, they take, at various intervals, approximately one month apart, an empty milk bottle that has been washed and disinfected, taken at random, a milk cap is placed on the bottle by the inspector, and he also places on the bottle a printed number, which is furnished to him by the office.

He then makes out, in triplicate, a sample receipt stub, on which he places the name of the dairy, the address of the dairy and, generally, the owner or manager of the establishment.

He indicates on this sample receipt stub where the sample was collected, places on it his own name or his number that he goes by, the date that the sample was collected and the time of the day the sample was collected, the name of the person who was in attendance at the plant at the time the sample was collected, places on that stub a 1544 number corresponding to the printed number that he placed on the bottle and indicates on the stub what examination is to be made.

He then takes that empty bottle to the Board of Health laboratory and places it in the ice box of the milk bacteriological control room of the Board of Health laboratories and makes out a white bacteriological laboratory card, on which he places the statement that it is an empty bottle, generally the size of the bottle, where it was secured, places his own name on it, on the white card, and a statement as to what examination is to be made of that sample.

He then stamps the card with a time stamp provided for that purpose and places the card into a small box in the bacteriological laboratory for that purpose.

An examination is then made, a bacteriological examination is then made of the empty milk bottle, by means of a rinse test, in accordance with standard methods, and the results of that test are then placed on this white laboratory

card by the bacteriologist, who indicates the number of colonies he has found and the results of the examination, together with his name or initials, and he then time-1545 stamps it and forwards this card to the director of the laboratories.

The card is then sent to the dairy products division, where a clerk enters the results of the examination on to the sample receipt stub which has been turned in to the Bureau of Dairy Products previously by the inspector with his daily time card, the time the sample was taken, and a copy of that result is forwarded to the inspector and the original of this stub is sent to another clerk, who enters the findings on a panel card kept in the Bureau of Dairy Products of each dairy's results, and then the stub is sent to the file, to be placed in a file of that particular dairy.

Q. In the event that the bacteriological examination would reveal a bacterial content in excess of that permitted by the ordinance, what, if anything, would be done by the Board of Health?

A. Notification is sent to the dairy concern of the results of the examination, and notification has been sent to the inspector, with this duplicate that he has made, that I previously described, and on which is stamped a request that a re-test be made.

The inspector then goes out to the plant to immediately determine the cause of the high count and to see that such standards are maintained, both the equipment oper-1546 ation and the construction, or that compliance is secured.

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 8 for identification, and this Defendants' Exhibit 9 for identification.

(The documents referred to were thereupon marked by the reporter Defendants' Exhibits 8 and 9, respectively, for identification.)

Mr. Schaefer: Q. I show you a pink slip, which has been marked Defendants' Exhibit 8 for identification, which purports to be a form used by the Board of Health, Bureau of Dairy Products. Can you state what that form is?

A. This is the form that I have just been speaking about, and termed a sample receipt stub. This is the original, being a pink slip of that form.

Q. That is the form which you refer to as being prepared in triplicate?

A. That is right.

Q. By whom is that prepared, and when?

A. It is prepared by the inspector at the time of taking the sample.

Q. I call your attention to an entry stamped on that card, which reads, "Less than 50 bacteria per bottle."

Will you explain that entry, please?

1547 A. That is the standard form that the Board of Health uses in reporting the results of analysis to the plants when the bacteriological examination shows the absence of any bacteria in that bottle.

The reason for that terminology is that in making a standard analysis under the rinse test 100 cc's of water are used, of which two cc's are plated out, and when no colonies grow on either one of those cc's it is marked "No growth," or zero number of colonies, but we report it as less than fifty, rather than sterile, because we have examined only two cc's of 100 cc's.

Q. Now, I show you a card which has been marked Defendants' Exhibit 9 for identification, which purports to be a card used in the bacteriological and chemical examination of milk by the Board of Health of the city of Chicago. Will you state what that card is?

A. That is the card that I referred to a few minutes ago as the white laboratory card made out by the inspector and turned in with the sample of empty bottle.

I neglected to state, I believe, when I spoke about the entries he placed on the card, that he also places the number on this card corresponding to the number 1548 that he placed on the bottle at the time he collected the sample.

Q. On that card does there appear an identification of the plant from which the bottle was secured?

A. There is nothing on this card to indicate from what plant the bottle was secured. It is merely state "Pasteurizing plant."

Q. In the normal practice of the Board, is there any notation made on those cards as to the identification of the dairy from which the sample was secured?

A. There is never any notation placed on the cards as to the name of the company from whom samples were secured.

Mr. Schaefer: I offer those in evidence.

Mr. Gariepy: No objection, Master.

The Master: They may be received.

(Said documents, being a sample receipt stub of the Board of Health and white laboratory card, respectively, so offered and received in evidence, were marked DEFENDANTS' EXHIBITS 8 and 9, and are attached hereto and made a part hereof.)

Mr. Schaefer: Q. Mr. Krueger, have you personally examined the records of the Board of Health in the years 1937, 1938 and for the first nine months of 1939, with respect to the results of bacteriological examination of milk bottles.

A. Yes, I have.

Q. As a result of that examination of those records, have you prepared a tabulation showing the number of bottles examined and the result of the examination?

A. Yes, I have.

Mr. Schaefer: Mark this Defendants' Exhibit 10 for identification, please.

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 10 for identification.)

Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 10 for identification. Will you state what that is?

A. This is a tabulation of the bacterial content of all empty milk bottles examined by the Board of Health of the city of Chicago during the years 1937, 1938 and the first nine months of 1939, that I was able to find in the files of the Board of Health.

Mr. Schaefer: Will you mark this document, Mr. Reporter, Defendants' Exhibit No. 11 for identification.

1550 (The document referred to was thereupon marked by the reporter Defendants' Exhibit 11 for identification.)

Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 11 for identification, Mr. Krueger. Will you state what that is, please?

A. This is a record of the bacterial content of empty one-quart milk bottles examined by the Board of Health of the city of Chicago during the years 1937, 1938 and the first nine months of 1939, and including all of the quart-bottle records I was able to find in the files of the Board of Health.

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 12 for identification?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 12 for identification.)

Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 12 for identification. Will you state what that is, Mr. Krueger?

A. This is the same tabulation as I previously described for quart bottles, excepting that this includes all of the pint bottles.

Mr. Schaefer: Will you mark these, Mr. Re-1551 porter, as Defendants' Exhibits 13, 14 and 15 for identification?

(The documents referred to were thereupon marked by the reporter Defendants' Exhibits 13, 14, and 15, for identification.)

Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 13 for identification, Mr. Krueger. Will you state what that is?

A. That is the same tabulation that I described for quart bottles, excepting this represents all of the one-third quart bottles.

Q. And I show you Defendants' Exhibit 14 for identification. Will you state what that is?

A. This is the same tabulation as I described for quart bottles, excepting that it includes all of the one-half of pint bottles.

Q. And I show you Defendants' Exhibit 15 for identification. What is that?

A. In making up this tabulation and breaking it down into the various sized containers, I used, wherever possible, the laboratory record cards, and then matched those up with the pink sample receipt stubs, and in some cases, particularly for the year 1937, we found white cards, laboratory cards, but did not find the corresponding pink stubs, because normally we do not keep 1552 our records more than two years, and occasionally some are misfiled, and there were some that we were not able to find a pink record on.

In some of those cases we did not know the size of the container, but we did know that there was a violation, in view of the fact that where there had been a violation the clerk who placed the results of the examination on the sample receipt stub, after the examination had been made, would indicate a violation by running a red line underneath the results on that card.

This is a tabulation of those samples, and is marked "Size of bottle unclassified," so we are thus including

in our tabulation all of the results of the samples that we found.

Q. Now, referring to Defendants' Exhibit 10 for identification, again, in your opinion does the report of examinations of empty glass bottles made by the Board of Health, as reported on that exhibit, fairly show the actual bacteriological condition of glass bottles used for the distribution of milk in the city of Chicago?

A. Yes, it does.

Q. In the making of examinations of empty glass bottles to determine their bacteriological condition 1553 and in reporting that condition on the cards to which you have referred, is any distinction made with respect to the volume of milk distributed by the dairy whose bottle is being examined?

A. No. This report does not show a—

Mr. Gariepy: I object to the last part, Master. He answered no, and I think that is responsive. He asked him if there was any distinction and he said no.

The Master: Overruled. Finish your answer.

Mr. Schaefer: Q. You may answer, Mr. Krueger.

A. No, it does not, because the samples are collected by each inspector, approximately one sample from each milk plant each month. That may be a little over a month in some cases or a little bit under, but roughly that is approximately what they try to get, and it does not make any difference whether the plant is handling three or four hundred thousand bottles a day or three or four hundred bottles a day. Just one bottle is selected from each establishment.

In addition, whenever a sample empty bottle is found to contain a number of bacteria above the limit, or even close to it, the inspector goes back to the plant and takes more samples, so that this would represent our taking of more samples from those where the operation may not be 1554 as good as it would be in some other plants.

The larger plants, almost all of them, have a very extensive laboratory checking of their own, in which they take empty bottles themselves almost daily and watch that very closely, so that this will probably represent more samples from these smaller concerns, where the total number of bottles would be in a very small proportion.

Q. Generally speaking, is the same type of bottle washing and disinfecting equipment used in the larger plants as in the smaller plants?

A. No: The larger plants, almost all of them, use the soaker type method of bottle washing. Half of the plants, or approximately half of the plants in the city of Chicago, use that method of bottle washing, which represents about 95 or 96 per cent of the supply of milk, while the other half of the plants, in number, generally use hand washing facilities or hand and small mechanical devices combined, which, although they represent half in number, only represent about four per cent of the total quantity of milk.

Q. In your opinion, can an accurate analysis of the condition of the glass bottles used throughout the city of Chicago be secured without giving weight to the tabulation of the volume of distribution of each dairy whose 1555 bottle is examined?

A. No, it could not, for the reason that this tabulation represents all of the bottles that we pick up, and we make no effort to weigh them in any way, as would have to be done if that condition were to be determined.

Mr. Schaefer: I offer in evidence Defendants' Exhibits 10, 11, 12, 13, 14, and 15.

The Master: They may be received.

(Said documents, being tabulations showing bacterial content of empty milk bottles examined by the Board of Health of the city of Chicago during the years 1937, 1938 and the first nine months of 1939, and being, respectively, DEFENDANTS' EXHIBIT 10, totals of all bottle sizes, DEFENDANTS' EXHIBIT 11, one-quart bottles, DEFENDANTS' EXHIBIT 12, one-pint bottles, DEFENDANTS' EXHIBIT 13, one-third quart bottles, DEFENDANTS' EXHIBIT 14, one-half-pint bottles, and DEFENDANTS' EXHIBIT 15, unclassified bottles, were received in evidence, marked as indicated and are attached hereto and made a part hereof.)

Mr. Schaefer: Q. What instructions, if any, have you caused to be given to inspectors of the Board of 1556 Health during the year 1939 with respect to procuring the samples of paper containers used in the distribution of milk in the suburbs?

A. I gave instructions to the head of the city milk division and the supervisors to have samples of paper milk bottles collected and brought into the laboratory for analysis.

Q. Do you know whether or not those instructions were complied with?

A. They were complied with, yes.

Mr. Gariepy: When? Did he say when he did it?

Mr. Schaefer: Q. When did you give those instructions?

A: During the year 1939. I believe we started early in the year.

Q. Are you familiar with the provisions of the United States Public Health Service Standard Milk Ordinance and Code?

A. I am.

Q. For how long have you been familiar with those provisions?

A. For the last five years or more.

Q. Prior to the June, 1939, meeting of the Public Health Service Milk and Milk Products Sanitation Advisory Board, what reference, if any, was made to the 1557 use of single-service paper containers for the distribution of milk and milk products in the United States Public Health Service Standard Milk Ordinance and Code?

A. There was no reference of any kind to the use of paper milk containers.

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 16 for identification, please?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 16 for identification.)

Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 16 for identification, and which purports to be a copy of Section 10 of the United States Public Health Service Standard Milk Ordinance, as it existed prior to the June, 1939, meeting of the Public Health Service Sanitation Advisory Board. Will you examine that document and state whether or not it is an accurate copy of Section 10 as it existed prior to that meeting?

A. Yes, it is. It is a copy of that.

Q. Have you checked that with the original ordinance, Mr. Krueger?

A. Yes, I have.

Mr. Schaefer: Will you mark this, Mr. Reporter, 1558 Defendants' Exhibit No. 17, please?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 17 for identification.)

Mr. Schaefer: Q. I show you a document which has

been marked Defendants' Exhibit 17 for identification, and which purports to be a copy of Section 10 of the Public Health Service Milk Ordinance, as amended at the June, 1939, meeting of the Public Health Service Sanitation Advisory Board, and as will appear in the 1939 printed United States Public Health Service Milk Ordinance. Will you examine that document and state whether or not it is a correct copy of Section 10 of the United States Public Health Standard Milk Ordinance as it will appear in the 1939 printed Health Service Ordinance and Code?

A. This is a copy of what I have been informed will be printed in the 1939 printed Public Health Service Milk Ordinance and Code.

Q. By whom were you so informed?

A. By the United States Public Health Service.

Mr. Schaefer: Off the record.

(Discussion had off the record.)

Mr. Schaefer: I offer Defendants' Exhibits 16 and 17 in evidence.

1559 Mr. Gariepy: No objection.

The Master: They may be received.

(Said documents, being copies of Section 10 of the United States Public Health Service Milk Ordinance and Code as adopted before and after June, 1939, respectively, so offered and received in evidence, were marked DEFENDANTS' EXHIBITS 16 and 17, and are attached hereto and made a part hereof.)

Mr. Schaefer: Q. Mr. Kraeger, have you made an examination and determination of the results of bacteriological examinations conducted by the Board of Health with respect to milk bottles used at the Ogden Dairy Company, 4333 Ogden Avenue, Chicago, Illinois, in the years 1937, 1938, and for the first nine months of 1939?

A. I have, and including all of the samples that I know of to date.

Q. You mean some samples also in October?

A. That is right.

Mr. Schaefer: Mr. Reporter: will you mark this Defendants' Exhibit 18 for identification, consisting of nine pages.

(The document referred to was thereupon marked by the reporter as requested.)

1560 Mr. Schaefer: Q. I show you a document which has been marked Defendants' Exhibit 18 for identifi-

cation, and which consists of nine pages. What is that document?

A. This is a tabulation of all of the samples of empty milk bottle results, samples taken and the results of the bacteriological examination of such bottles for the years 1937, 1938 and 1939.

Q. What does the left-hand column of that exhibit indicate?

A. The left-hand column gives the dairy products sample number which was placed on the bottle at the time it was picked up, a stub for which was made out and is the number which we carry on our records as the sample number.

Q. And what do the entries in the column headed "Date Coll." represent?

A. That represents the month, day and year that that particular empty bottle sample was collected.

Q. And the entries in the next column headed, "Collected by" indicate what?

A. That is the name of the inspector or supervisor who picked up the sample.

Q. And the entries in the next column-headed "source" indicate what?

1561 A. That is the place where the empty bottle was picked up.

Q. And the entries in the column headed "Container" indicate what?

A. That represents the size of the bottle that was collected.

Q. And the entries in the last column, headed "Bacterial Count and Bacteriologist" indicate what?

A. That gives the results of the bacteriological examination of the empty bottle and the name of the bacteriologist who did the work.


Q. Do you have with you, Mr. Krueger, the original pink slips, similar to Defendants' Exhibit 8, and the laboratory cards, similar to Defendants' Exhibit 9, covering the inspections reported in Defendants' Exhibit 18?

A. I do for all but four samples collected in 1938, where I was unable in a short time to find either the white card or the pink slip. However, those four samples, which were indicated on the second sheet as sample Nos. 8227, 8254, 8271 and 13247, were taken from the panel card of the particular dairy, the Ogden Dairy Company.

Those were included even though I did not have the white cards, because I wanted to get all the results 1562 in that record that it was possible for me to find.

Q. Now, in the normal course of business at the Board of Health when are entries made on the panel card which you described and from what source are those entries made?

A. The entries on the panel cards are made from the pink inspector's receipt stub and are made directly after the clerk has indicated the results thereon from the white laboratory cards and immediately before those pink receipt slips are sent to the files.

Mr. Schaefer: I offer Defendants' Exhibit 18 in evidence. 

Mr. Gariepy: With regard to the Defendants' Exhibits 8 to 18, I take it that if we ask with regard to the dates on which those are made, the original records are open to our inspection?

Mr. Schaefer: All of the original records pertaining to any of these exhibits are open to your inspection. I have the cards here with respect to this exhibit. If you want to examine them, you can do it. They are back here.

Mr. Gariepy: All right.

The Master: Exhibit No. 18 may be received and marked.

1563 (Said document, consisting of nine pages, being a tabulation of results of bacterial examinations conducted on milk bottles used at Ogden Dairy Company, so offered and received in evidence, was marked DEFENDANTS' EXHIBIT 18, and is attached hereto and made a part hereof.)

Mr. Schaefer: Q. Mr. Krueger, do you know what treatment, if any, is given by dairies in the city of Chicago to bottles which are delivered to those dairies by the Bottle Exchange?

A. The bottles delivered to the dairies from the Bottle Exchange are treated by the plant the same as are all other bottles. They are all washed and sterilized in the milk plants.

Mr. Schaefer: Cross-examine.

The Master: Let us have a short recess, first.

(A short recess was here had, after which the proceedings were resumed as follows:)

The Master: Let us proceed.

1564

Cross-Examination by Mr. Gariepy.

Q. Mr. Krueger, you were asked on direct examination concerning the provisions of the milk ordinance and code as recommended by the United States Public Health Service prior to June, 1939. Are you familiar with those provisions previous to that date?

A. Yes, I am.

Q. I show you a document, which purports to be a bound copy of the milk ordinance and code represented by the United States Public Health Service, dated January, 1939, and call your attention to page 95 thereof, Item 12-p. Will you read that item and tell me whether you knew anything about the existence of that previous to today?

A. Yes.

Q. Was that in the ordinance previous to June, 1939?

A. What part of it did you refer to?

Q. The item underlined under Item 12-p, all underlined. Will you read it for the record?

A. "All milk and milk products containers and equipment, except single-service containers, shall be thoroughly cleaned after each usage. All containers shall be subjected to an approved bactericidal process after each cleaning and all equipment immediately before each
1565 usage. When empty and before being returned to a producer by a milk plant each container shall be effectively cleaned and subjected to bactericidal treatment."

Q. And the words "single-service containers" in the second line thereof refer to paper milk bottles, doesn't it?

A. Well, I would assume that, yes.

Q. Calling your attention to page 99 of this same book, milk ordinance and code, Item 15-p, entitled "Storage of Caps, Parchment Paper, and Single-Service Containers," were you familiar with the fact that that was in the January, 1939, code, previous to June, 1939?

A. Yes.

Q. Will you read that section, Item 15-p?

A. "Milk bottle caps or cap stock, parchment paper for milk cans, and single-service containers shall be purchased and stored only in sanitary tubes and cartons, respectively, and shall be kept therein in a clean dry place."

Q. Then there was, Mr. Krueger, some acknowledgment with regard to the existence and use of single-service

containers prior to June, 1939, in the United States Public Health Code, was there not?

A. There were no regulations designed particularly to govern the production of paper containers in the code.

Q. But your reference on direct examination, or statement, rather, that there was no reference to the single-service container in the code was not correct, was it?

A. In my answer I had reference to the fact that there were no definite requirements drawn up for those paper containers, inasmuch as the matter had been brought to the attention of the Board at its meeting in 1938, at which time it was decided not to draw up any regulations for those milk containers, inasmuch as insufficient information was available concerning them, their production, their safety and other factors that entered into it, particularly the fact that they were porous and that it was possible for paraffin to get into the milk from them in their use.

Q. Are you acquainted with this suggestion of October 7, 1937, which refers to Section 10, of the United States Public Health Service, which Mr. Schaefer showed you and with regard to the other provisions of the United States Public Health Ordinance?

A. Yes. That letter was received a few days ago by the Board of Health.

Q. Referring to a photostatic copy of a letter dated October 6, 1939, on United States Public Health Service stationery, signed by Walter N. Dashiell, is that right?

A. Yes.

Q. Attached thereto, under the same date, Section 10 of the United States Public Health Service Ordinance, is that right?

A. That is right.

Q. Are you acquainted with this paragraph, reading: "The use of standard milk bottles or single-service containers for delivering milk and milk products in quantities less than one gallon is required in order to prohibit delivery in such containers as buckets, fruit jars, etc., which may be difficult to wash and to subject to adequate bactericidal treatment, which cannot be filled and canned with the proper equipment used for these purposes, and which it is often difficult to label properly."

That is part and parcel of this suggestion under Section 10, is it?

A. That is part of the code under that section, yes.

Q. Are you acquainted, Mr. Krueger, with any action taken by the State Department of Health with regard to the use of single-service containers in the State of Illinois?

A. I am not familiar with what they require on that.

Q. Are you acquainted with the fact as to whether they prohibit their use or not?

A. So far as I know, they do not prohibit their use, no, sir.

Q. Do you know, as a milk sanitarian, the commissioners of health of the cities such as New York, Philadelphia and Detroit?

A. Well, I know of those commissioners, yes.

Q. Do you consider those commissioners competent, efficient health commissioners?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Do you know whether the single-service container is used in those cities or not, Mr. Krueger?

Mr. Schaefer: Objected to.

Mr. Gariepy: He is on here as an expert milk sanitarian.

The Master: I will let him answer.

The Witness: Will you read the question, please?

(Mr. Gariepy's last question was read by the reporter as above recorded.)

1569 The Witness: A. What were the names of the cities?

Mr. Gariepy: Q. Detroit, Philadelphia, New York City.

A. I understand that they are being used in those cities, yes, sir.

Q. Do you know how many cities in the United States are using the single-service container for the sale of fresh fluid milk at this time?

A. No, I do not.

Q. If I told you that 485 cities were using them and included in those 485 were three of them at the present time operating under the United States Public Health

Service Code, namely, Winnetka, Louisville, Kentucky, and Phoenix, Arizona, would you be surprised?

Mr. Schaefer: That is objected to.

The Master: Objection sustained.

Mr. Gariepy: Q. Do you know that, Mr. Krueger?

Mr. Schaefer: That is objected to.

The Master: Yes.

Mr. Gariepy: Q. Do you know that those three cities use them?

A. I don't know.

Q. You don't know that?

A. No, sir.

Q. Mr. Krueger, how many dairies are there in 1570 the city of Chicago permitted to sell milk?

A. There are approximately 140 milk pasteurization plants.

Q. And from those or from those dairies in making these inspectors that you referred to you have been taking bottles and performing the standard rinse test, is that right?

A. Yes, sir.

Q. On Exhibit No. 11, for the year 1937, how many sample bottles did you take for that year from 140 dairies?

A. Exhibit 11 shows the number of one-quart bottles taken from various dairies.

Q. How many did you take?

A. And for the year 1937 there was a total of 423 quart bottles taken.

Q. From the 140 dairies?

A. Yes, sir.

Q. And how many quart bottles or other glass bottles were taken in the year of 1938 from the 140 dairies, on which bottles you performed tests?

A. The number of quarts and all other size bottles taken was 1484 bottles in the year 1938.

Q. Do you know how many you took from each of the respective 140 dairies during that year?

A. No, I do not, no, sir, not from each individual 1571 dairy, no.

Q. And for the year 1939, or the first nine months thereof, how many sample bottles did you take from the 140 dairies?

A. Well, we took a total of 1144 bottles.

Q. In nine months?

A. In the first nine months of 1939.

Q. And how many of those were taken from the Ogden Dairy, as shown on Exhibit No. 18?

A. One hundred and thirty-seven bottles were taken from them in 1939.

Q. And how many of those were taken subsequent to September 1, 1939?

A. One hundred and thirty-three bottles were taken since the first of September, 1939.

Q. Out of the entire 137 that were taken in the year 1939, or the first nine months thereof?

A. That is right.

Q. Mr. Krueger, did you ever have occasion in the year 1937 to go to Champaign, Illinois, with Dr. White of the bacteriology department of the Board of Health, to inspect the single-service paper containers and the Ex-Cell-O machine down there in the custody of the Department of Dairy Husbandry?

A. I made a trip to Urbana.

1572 Q. Do you know Dr. Paul Tracy?

A. I do.

Q. Did you meet him on any occasion in 1937 when Dr. White made the trip with you there?

A. Yes, I did.

Q. Did you have any conversation with him concerning the results of his experiments on said machine and the containers at that time?

A. Yes, I did.

Q. Do you remember what your conversation was?

Mr. Schaefer: That is objected to.

The Master: Off the record, please.

(Discussion had off the record.)

The Master: You are objecting on the ground that this is not proper cross examination?

Mr. Schaefer: Yes, sir. On that ground, and on the additional ground that any conversation between Mr. Krueger and Professor Tracy is immaterial.

Mr. Garipey: My answer to that is that we have a witness who is interested in this litigation, who is a member of the Board of Health, so to speak, concerning the milk division and the matter of public health, and we ought to be able to go into the matter of his interest and his acts and his contacts with relation to the single-service con-

tainer here, especially in view of the fact that we
1573 have stipulated that since January, 1936, the plaintiff made application for the use of these containers from the city and that such use was not granted up to February 6, 1939, the time of filing suit, and that this man, in the milk division has charge of dairies and the inspection of dairies and the sanitary conditions of bottles. I think it is certainly pertinent and proper that he be asked on some of these matters.

The Master: I will sustain the objection on the ground that there is nothing in the direct examination to which this question pertains.

Mr. Gariepy: And also on the ground of interest, Master, you sustain the objection there?

Mr. Schaefer: What is that? There hasn't been any objection on the ground of interest.

The Master: I have sustained the objection on the ground of not being cross examination or at least not pertaining to anything brought out on the direct examination.

Mr. Gariepy: Q. Did you ever make any statement to Dr. Tracy concerning releasing any reports with respect to his research work on the Ex-Cell-O machine and the single-service container in the year 1937, when you
1574 made trips there?

Mr. Schaefer: That is objected to, for the same reason.

The Master: The same ruling.

Mr. Gariepy: Q. Do you also obtain in the Department of Health and in your milk division bacterial counts on milk in glass containers?

A. What was that question?

Mr. Gariepy: Read it.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. Yes, we take routine samples of our milk supply.

Q. I show you Plaintiff's Exhibit 4, which has been offered and received in evidence, and ask you if you ever saw that document before, Mr. Krueger, handing document to the witness)?

A. Yes, I believe I have seen most of the material in there.

Q. Are you acquainted with the signature of Lloyd Arnold on page 6 thereof, in ink?

A. Yes, I am.

Q. Are you an instructor on the University of Illinois staff, an instructor on public health and bacteriology under Dr. Arnold, at the University of Illinois?

1575 A. Yes, I am.

Q. And how long have you been such?

A. For the last two years.

Q. How many instructions or lectures have you given at the University of Illinois to the students?

A. I imagine about four or five lectures.

Q. Are those lectures free from you or are you paid for them?

A. I receive no compensation of any kind for them.

Q. What did you do with this document, Plaintiff's Exhibit 4, when you first saw it, Mr. Krueger?

Mr. Schaefer: That is objected to as not proper cross-examination.

The Master: Sustained.

Mr. Gariepy: Q. When did you first learn, Mr. Krueger, that the plaintiff, Fieldcrest Dairies here, had made an application to the Department of Health of the city of Chicago for—

Mr. Schaefer: That is objected to.

Mr. Gariepy: Wait a minute until I finish my question.

Q. (Continuing.) —with regard to the use of single-service containers in this city for the sale of fresh fluid milk?

Mr. Schaefer: Objected to, for the same reason.

1576 The Master: The same ruling.

Do you have any question here as to the accuracy of these statistical matters and the statements made by this witness as to the routine of his department?

Mr. Gariepy: We went into that part already, but is the Master trying to foreclose me from showing the interest of this witness and his position and actions with regard to the plaintiff's application?

The Master: The only relevancy the questions concerning his interest would have would be to attack his credibility as a witness regarding the matters that he testified about, and, as I recall, the only thing he testified about were the results of some inspections made at various places and a description of the routine of his department. Now, then, I cannot see what effect any questions concerning

his general interest are going to have on the testimony that he gave.

Mr. Gariepy: All right. If I get the Master clear, it is the Master's position that I am foreclosed from asking this witness any questions, except to cross-examine on those questions as to which Mr. Schaefer asked him on direct, concerning Exhibits 8 to 18, covering tests on 1577 glass bottles in 140 dairies in the city of Chicago. That is exactly all he testified to.

The Master: All right. Now, I am asking you the question whether you contend in any way that the testimony that he gave concerning the routine of the inspections is to be attacked by you. That is all. Do you contest that or not?

Mr. Gariepy: Well, I think the evidence so far as given by the defendant on direct and cross-examination shows an unusually small number of bottles examined during the period of three years, from 140 dairies, over that course of time, and showing 133 tests of bottles out of 137 since September, when there was anything brought in in this lawsuit concerning a certain Ogden Dairy and the conditions of bottling at that dairy. I think that evidence has been brought out here and it speaks for itself.

Q. Now, Mr. Krueger, do you know about the operation of the soaker washing machine that you mentioned in your direct examination?

A. I know about that type of machine, yes.

Q. Is there any guide or thermometer on that soaker washing machine which washes these glass bottles and which you say is used in 95 per cent of the dairies 1578 operating in the city of Chicago, that indicates the alkali strength or the strength of the washing solution as it is used and passes over the glass bottles in the washer?

A. I did not say that machine is used in 95 per cent of the plants. I said that the plants that use them handle about 95 per cent of the supply sold.

Q. All right, take it your way. The plants that supply 95 per cent of the milk sold in the city of Chicago are using the soaker washer?

A. That is right.

Q. Do you know now whether there is any guide, mechanical guide, thermometer, that indicates on said soaker washer the alkali strength of the solution that is used when the bottles are being washed?

A. There are thermometers on those machines, but they

are merely used to determine the temperature of the soaking solutions, and, as far as the strength of the alkali that they use is concerned, those tests are made by taking samples from the tanks and running them through chemical apparatus, in making a chemical test.

Q. But whether the solution is strong with alkali or whether it is not strong, or whether it is weak, you do not know, until you take a sample out of the washing 1579 fluid itself, is that right?

A. We can determine that either by watching the amount of sodium hydroxide or other alkali that is placed in the tank, or by means of the test itself. The common method is by use of the test.

Q. The test on the glass bottle?

A. The test of the alkali solution in the washer. Each plant that uses a soaker type washer has the equipment for making those tests and makes those tests routinely and periodically under the supervision of our own inspection.

Q. Mr. Krueger, do you have anything to do with the matter of checking up on other containers that are used in the city of Chicago, that are referred to in Section 3094 of the Municipal Ordinance here?

A. I don't know just what you refer to.

Mr. Gariepy: Let me take the ordinance, Mr. Schaefer.

The Master: What other containers are you referring to?

Mr. Gariepy: Q. Showing you, Mr. Krueger, Section 3094, and with special reference to the last four lines, which read: "Provided, however, that nothing herein contained shall be construed to prohibit hotels, soda fountains, restaurants and similar establishments from dispensing milk or milk products from sanitary 1580 dispensers approved of by the Board of Health."

A. Yes, sir, that comes under my supervision, also.

Q. And what containers have you approved of as coming under your supervision with regard to this Section 3094, in the lines I have just read?

Mr. Schaefer: That is objected to.

The Master: What does that have to do with the direct examination here?

Mr. Gariepy: This ordinance speaks for itself, showing that they have a right to approve certain containers, and I am asking him what containers they approved. They failed to approve the plaintiff's containers.

The Master: I know, but that was not covered in the direct examination here. I will sustain the objection.

Mr. Gariepy: All right.

Q. Mr. Krueger, are you acquainted with the proceedings that took place at the June, 1939, meeting of the United States Public Health Service Advisory Board, of which you say you are a member?

A. Yes.

Q. Did you attend said meeting?

A. I did.

Q. And was the matter of single-service containers at that meeting discussed?

1581 A. Yes, it was.

Q. Will you look at Plaintiff's Exhibit 61, consisting of three sheets, first, the letter and, second, the action of the United States Public Health Service with relation to the container, and tell me whether it represents the true result of that conference and the action of the Board of Advisors?

A. This is the copy of the regulations that were adopted, but does not include the change in the ordinance under Section 10 that was also made at the same time.

Q. Section 10 is the exhibit which was offered and received in evidence on the part of the defendants this morning, that you identified?

A. That is right.

Q. Now, besides the glass milk bottles are there any other containers that your division of the Board of Health inspects and examines for the matter of bacterial content and safety?

A. We examine all of the glass containers that are used by the dairies in accordance with the ordinance and regulations of the city of Chicago, because we enforce those regulations. That is our job.

Q. What containers do you examine, that are not
1582 glass containers that you permit the use of by restaurants and hotels?

A. I don't know of any container other than glass which is permitted.

Q. You stated that you performed the standard analysis or rinse test of 100 cubic centimeters of water being placed in the container and two centimeters being taken out and plated. That is the standard test?

A. The standard method, yes.

Q. And is that the only test that you apply to detect

the sanitary qualities of the bacterial count in the glass bottles?

A. Yes, that is the test we use. That is the test we use on routine examinations. We may make some others when looking for something exceptional, but that is our routine.

Q. You stated that you gave an instruction to inspectors to pick up paper samples or paper milk bottles in the city. What instruction did you give them, other than to pick them up?

A. I said that I gave the instructions to the inspectors, supervisors and directors to have certain bottles picked up, and my instruction to them was merely that certain paper containers were to be picked up and delivered to the laboratory for laboratory examination.

1583 Q. Do you know whether they ever picked any paper containers up from the plaintiff, Fieldcrest Dairies, at their plant?

A. I don't know that, no, sir.

Q. Did you ever cause any containers from that plant to be brought in to you?

A. Some of the containers that were brought in were those, so far as we know, put up by the Fieldcrest Dairies, yes.

Q. Were they with milk in them or without milk?

A. So far as I know, they all had milk in them.

Q. But you got no containers at Fieldcrest Dairies that were sealed and paraffined and closed, without milk being in them?

A. Not that I know of, no, sir.

Q. Now, let us get back to the United States Public Health Ordinance and Code previous to June, 1939. Will you point out to me any restriction, ruling, regulation or provision that excludes single-service containers?

A. Under Section 10 there is a requirement that milk and milk products sold in the distributor's containers in quantities less than one gallon shall be delivered in standard milk bottles.

Q. Is that your answer, Mr. Krueger?

A. Just a minute. I want to look through this.
1584 It is a big book.

The Master: Is that ordinance in evidence?

Mr. Gariepy: Not yet. He asked him if he knew about this ordinance, what the provisions of it were previous to June, 1939, and what he knows about it now.

Mr. Schaefer: Section 10 of it was all.

The Master: Off the record.

(Discussion had off the record.)

Mr. Gariepy: Q. Do you know offhand, Mr. Krueger, without looking through the ordinance?

A. The section that I just referred to, Section 10 of the ordinance, requiring standard milk bottles, would not permit the use of paper milk bottles.

Q. That is your idea about it?

A. That is my opinion, yes.

Q. Will you look in the Mayor Kelly milk ordinance that I show you now and point out to me any provision in there excluding single-service containers?

Mr. Schaefer: That is objected to.

The Master: That is a matter of argument. You don't have to have this witness testify to that.

Mr. Gariepy: He says he considered the United States Standard Code—

The Master: Read the question.

(Mr. Gariepy's question was read by the reporter as above recorded.)

1585 Mr. Schaefer: That is objected to.

The Master: I will sustain the objection. It calls for an argument.

Mr. Gariepy: Q. Did the United States Advisory Board in June, 1939, change the definition or add any definition to the United States Code concerning a standard milk bottle?

A. Yes, they did change that definition so as to include or make it possible to include paper milk containers.

Q. Then paper milk containers are considered standard milk bottles under their definition of the code at this time?

A. No. The decision of the Board was that the wording in the past did not include paper containers or the standard paper bottle did not include paper containers, and for that reason a change was made in the ordinance that milk sold in quantities less than one gallon shall be placed in standard milk bottles or single-service containers.

Q. But previous to June, 1939, the ordinance provided in Item 12-p that you read, and also in Item 15-p, on pages 95 and 99, respectively, with regard to the use of single-service containers for the sale of milk, didn't it?

1586 A. At the time of the Advisory Board meeting—

Q. No. I am just asking you about what this ordinance provided.

The Master: Repeat the question.

Mr. Gariepy: Q. Mr. Krueger, the United States Public Health Service Milk Ordinance and Code previous to June, 1939, on pages 95 and 99 thereof, that I showed you, did expressly state and refer to single-service containers for the use of and sale of fresh fluid milk, didn't it?

A. It did refer to that subject of paper containers, but it was so poorly worded in that code that for that reason the Public Health Service advised that it could be interpreted one way or another way, and that cities that had interpreted it not to include single-service containers were perfectly in their right to exclude them and could maintain that position within the meaning of the code.

Q. Then it was only a matter of clarification that they made this change?

A. No, I would say it was not a matter of clarification, because—

Q. Then it was to remove an ambiguity?

Mr. Schaefer: Just a minute. I suggest that the witness be allowed to answer.

1587 The Master: Let him answer.

Mr. Gariepy: Can't he answer the question without making a speech? I want a short and concise answer, yes or no.

The Master: Let him answer the question.

The Witness: A. (Continuing.) —because the Public Health Service Advisory Board had specifically said at the meeting previous to this June meeting that it did not recommend the use of single-service containers, and for that reason it did not even draw up requirements covering them.

Mr. Gariepy: Q. But they do recommend them now, do they?

A. At the—

Q. Answer the question yes or no, Mr. Krueger, please.

A. No, because—

Q. No, never mind your "because." Now, please answer the question. I don't want any arguments.

Mr. Schaefer: Oh, these bullying tactics.

The Master: If he can't answer the question that way, let him explain.

Mr. Gariepy: No, he can answer my question yes or no, in plain English. I don't want any "becausees."

The Master: If he wants to answer the other way, I will let him answer. Go ahead and put a question to him,

1588 or is there one pending?

Mr. Gariepy: No. I will put the question so he can answer it briefly.

Q. I will ask you the question again, Mr. Krueger, whether the United States Public Health Service and the Board of Advisors do now recognize the use of single-service containers for the sale of fresh fluid milk? Yes or no.

A. They do recognize that now, yes, sir.

Q. And you attended the meeting at which they took recognition of it?

A. Yes, and we took recognition by drawing up definite requirements that those containers shall meet before we shall give recognition to them.

Q. And before that time several cities were using them and several cities were not using them, is that right?

A. So I am informed, yes.

Q. You don't know how many were or were not, do you?

A. No, I do not.

Q. How much milk in quarts is sold in the city of Chicago at this time per year, if you know?

A. I do not know.

Q. How much per month?

A. I don't know how much is sold in quarts at any time.

1589 Q. You don't know how many glass bottles are used, do you, for the sale of milk per year?

A. No, I do not.

Q. Do you know how many bottles go through the Milk Bottle Exchange out here on the west side of the city?

A. No, I do not.

Q. Have you ever visited the Milk Bottle Exchange?

A. Yes, I have.

Q. How often?

A. Not very often. I think I was there several years ago, the last time.

Q. About what is the daily consumption of fresh fluid milk in the city of Chicago, if you know?

A. That runs approximately 1,300,000 quarts a day.

Q. And out of that 1,300,000 quarts a day your department took 1400 samples in one year?

A. That is right.

Mr. Schaefer: You mean of bottles, don't you?

Mr. Gariepy: Q. Of bottles?

A. Of empty milk bottles.

Q. Do all of the 140 dairies obtain their bottles through this Milk Bottle Exchange out here?

A. I don't know anything about the economic operations of the Milk Bottle Exchange.

Q. Do you know how the dealers get their bottles before they put them back in the machine and fill them and 1590 then you come to sample those bottles?

A. Yes. They get them back from their regular customers and some of them also from the Milk Bottle Exchange.

Q. But the number you do not know?

A. No, sir.

Q. At the University of Illinois, before you were graduated with a B. S. degree, did you take any courses in the husbandry department from Dr. Prucha?

A. No, I did not.

Q. You don't know him?

A. Oh, yes, I know him.

Q. You do know him?

A. Yes.

Q. Did he ever perform any work for the department of Health, research work?

A. Well, he did some work here a few years ago relative to the problems we were working on in connection with the high temperature short-time pasteurization, yes, sir.

Q. Mr. Krueger, is it not a fact that when you and Dr. White went down to Champaign to look at the Ex-Cell-O machine and the Pure-Pak container, you told Dr. Paul Tracy then not to publish reports concerning his research work on the Pure-Pak container until all of the containers were tested and all of the reports were ready to go out at the same time?

Mr. Schaefer: That is objected to.

1591 The Master: Oh, I will let him answer.

Mr. Schaefer: Oh, if the Master please—

The Master: I will let him answer.

Mr. Schaefer: I want to argue that. There is certainly no relation between any conversation—

The Master: Well, I have been holding him down. I will let him answer this question.

The Witness: Will you read the question?

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. My recollection of my conversation with Dr. Tracy relative to that matter was that Dr. Tracy

told me that the University was going to get out a bulletin on the work done on paper milk containers and that they were testing the Ex-Cell-O machine and several other methods of manufacture, and that they were going to publish a bulletin and asked my ideas as to how that bulletin could be made most effective for use in the state, and, as I recall it, I did say that it would be helpful, not only to us, but to others, to get the results of all of the examinations they made on the various types of bottles that they tested.

Mr. Gariepy: Q. Did you say anything about the time for the release of that information?

A. I did not mention about the time of the release, 1592 but Dr. Tracy, as I recall it, did, and he told me that he understood that Dr. Breed of New York State was going to come out with a bulletin, and he wanted to beat him to it.

Q. Have your inspectors that report to you in the milk division inspected and approved of the sanitary conditions at the Fieldcrest Dairies plant at Chemung, from which wholesale milk is sold in the city?

A. No, sir.

Q. Do you know that wholesale milk is sold from said plant with the permission of the Board of Health of the city of Chicago?

A. In regard to the—

Q. Do you know that, Mr. Kreuger?

A. Just read the question.

(Mr. Gariepy's question was read by the reporter as above recorded.)

Q. Change that to fresh fluid milk sold at wholesale from the plaintiff's plant at Chemung, in the city of Chicago, by and with the permission of the city of Chicago.

A. The Dean milk plant at Chemung has a plant which operates under a raw milk permit from the Board of Health of the city of Chicago, yes, sir.

Q. That is being done at this time?

1593 A. Yes, sir.

Q. And has been how long?

A. Oh, about three or four years.

Mr. Gariepy: That is all. Mr. Rall wants to ask a question.

The Witness: I would just like to correct my last answer. I said they had a permit. It is a milk receiving station for the sale of raw milk in Chicago.

Mr. Gariepy: Just another question, Mr. Krueger.

Mr. Schaefer: Is this a question from Dr. Tonney, that he suggested, Dr. Tonney?

Mr. Gariepy: Mr. Schaefer, is it any of your concern whether Dr. Tonney gives me fifty questions or sixty questions?

Mr. Schaefer: Go ahead and put the question.

Mr. Gariepy: It is none of my concern whether Dr. Arnold gives you a hundred questions at any time, breakfast time or any other time. You are entitled to put all the questions you want, no matter who gives them to you.

The Master: Well, let us go ahead.

Mr. Gariepy: Q. Mr. Krueger, how often does the washing soda in the soaker washing machine have to be changed, if you know?

A. It has to be changed every two weeks, at least.

1594 Q. And do you know positively whether they change it or not?

A. Yes, our inspectors enforce that section of the ordinance and code, the same as they do the other requirements of the code.

Q. Have you ever had any occasion to find sludge in the bottom of those washing machines?

A. In the bottom of the machines there is a substance formed by the combination of sodium hydroxide with water, and I assume that is what you refer to as sludge, yes, sir.

Q. And that is from the accumulation of impurities from the water itself, taken from the bottles, and dropping to the bottom, is that right?

A. I don't know what it consists of, but it is a natural action from putting sodium hydroxide in the water, so that that sludge forms over a period of time.

Q. How often do you take samples of this water in the soaker washing machines that are used to supply 95 per cent of the milk in the city, to determine the caustic qualities of it?

A. Those samples are taken by the inspector whenever he is making an inspection of the plant and finds it convenient to do that, which is at routine intervals.

1595 Q. Do you have any records in your office concerning that inspection and that report?

A. Only with the records that the inspector makes, which he may have. I don't know whether there are any in the office or not.

Mr. Gariepy: That is all. Mr. Rall will ask him a question.

The Master: Just a moment. Whom do you represent on this question?

Mr. Gariepy: I will ask him, if the Master does not want him to ask him.

Mr. Rall: I think it is better that Mr. Gariepy should ask it.

Mr. Gariepy: I will ask him then.

Q. Do the records in the milk division of the Board of health contain monthly reports of the inspectors upon the glass bottles in these 140 dairies that are permitted to sell milk in the city?

A. Yes, they do.

Q. But as to the inspectors' reports on the quality of the washing fluid in the soaker washer, you don't know?

A. Now that you remind me of these reports, there is a section on the report sheet that concerns the proper operation of the bottle washing equipment, and the 1596 inspector in his routine inspection of these plants inspects that as part of his routine work in inspecting the plant and makes a report on that, yes, sir.

Mr. Gariepy: That is all.

Redirect Examination by Mr. Schaefer.

Q. Mr. Krueger, how does it happen that there were so many bottles examined coming from the Ogden Dairy Company, since September, 1939?

A. Those bottles were taken at my direction, following a conversation between myself and yourself, at a time when you said there was some question about the efficiency of the operation over there, and I told you that our records showed that this bottle washing equipment and methods were exceptionally good, that we had had no violations there for a considerable length of time, and that just previous to the time that the testimony was introduced relative to the operation of that plant we had taken some samples and at your suggestion we took approximately ten bottles a day every day during the week from then on.

Mr. Schaefer: That is all.

Mr. Gariepy: That is all.

(Witness excused.)

1597 Mr. Schaefer: Dr. Tonney, will you take the stand, please?

The Master: You were previously sworn in this case?

Dr. Tonney: Yes, sir.

DR. FRED O. TONNEY called as a witness by the defendant, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Schaefer.

Q. Why are you here today, Doctor?

A. Well, to advise Mr. Gariepy and to show my interest in this case.

Q. To what?

A. To show my interest in this case.

Mr. Schaefer: That is all.

(Witness excused.)

Mr. Schaefer: I have another witness who I could put on, but we cannot conclude with him before you will want to adjourn.

Mr. Gariepy: Let us have him on direct and then I will cross-examine him after lunch.

Mr. Schaefer: All right.

The Master: Put him on.

1598 MATTHEW J. MARTINEK called as a witness on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. Will you state your name?

A. Matthew J. Martinek.

Q. And your occupation is what?

A. Principal chemist, in charge of the chemical laboratory of the Chicago Department of Health.

Q. How long have you held that position?

A. Nine years.

Q. And prior to that time, when you accepted that position, what was your occupation?

A. I was senior sanitary chemist of the Chicago Department of Health for eight years.

Q. Is the position of principal chemist in the Department of Health a Civil Service position?

A. It is.

Q. You said you were the senior sanitary chemist for approximately eight years?

A. Yes, sir.

Q. What school did you attend, Mr. Martinek?

A. The University of Chicago.

Q. When was that?

A. 1921. Graduated with Bachelor of Science Degree in chemistry.

1599 Q. Did you specialize in chemistry at that institution?

A. I did.

Q. Are you affiliated with any public health association?

A. The American Public Health Association.

Q. Have you written any articles that have been published with respect to the field of public health chemistry?

A. Yes, sir.

Q. Where were those published?

A. American Chemistry Society Journal and the Journal of the American Public Health Association.

Q. And to what did they pertain?

A. Gases, toxic gases; the determination of carbon monoxide in minute quantities in air and bloods, and detection and determination of methyl chloride in small quantities.

Q. Have you had any experience as a chemist in addition to that which you obtained as an employee of the Board of Health?

A. I am a major in the chemical warfare service of the United States Army. I have done some private consulting work and I am also a licensed dairy analyst for the State of Illinois.

Q. What are your duties as principal chemist in the Department of Health of the City of Chicago?

A. Well, I have immediate charge and supervision 1600 over twelve chemists who are engaged in routine and specialized chemical analyses pertaining to public health chemistry, and I also carry on independent research for the department, and I study new methods and introduce new methods of analyses as they come out, and I sign and approve all reports that leave the chemical laboratory of the Department of Health.

Q. What types of matter do you normally investigate as principal chemist in that department?

A. We have quite a variety of samples brought in. The food bureau brings in samples of preservatives, adulterants, certified colors, spoilage, decomposition. The dairy

division brings in routine samples for butterfats, gravity, added water. Creams are brought in for thickeners, and dairy products are tested for adulteration and preservatives.

We also run a test to determine whether or not a milk has been properly pasteurized or not.

Then we also have samples brought in which might be either accidental poisoning cases or with criminal intent. Such samples, of course, of the latter class, are brought in by the police department.

We also have a water section, in which we carry on routine and specialized water analyses of Lake Michigan water, and we carry on a complete line of blood chemistry analyses, urine and spinal fluid, and then we also do work for the fire department and fire prevention samples, and also arson cases.

I think that covers it pretty well.

Q. In the course of your duties as principal chemist for the Department of Health, have you had occasion to perform any tests with respect to paper containers used for the distribution of milk?

A. I did.

Q. What were those tests?

Mr. Gariepy: When? Let us get when.

Mr. Schaefer: We will get it all in due course.

Mr. Gariepy: I object until he tells where and when he performed it.

The Witness: The tests were performed—

Mr. Schaefer: Just a minute.

Mr. Gariepy: I am objecting until he tells when and where he performed it.

The Master: Tell us when.

The Witness: We started on February 6, 1939, and practically up to date.

Mr. Schaefer: Q. And what were those tests?

A. There were two types of tests conducted. One test was the methylene-blue absorption test to determine the visibility of the dye in the paper and the others were 1602 to determine suspended paraffin in the milk of the paper containers.

Q. How many paper milk containers did you examine during that period?

A. About eleven hundred.

Q. Now, will you describe the procedure which you followed in conducting the methylene-blue test to determine the absorption of the containers?

A. The sample of paper container was emptied of its milk content, thoroughly washed with water, and a one-eighth per cent methylene-blue solution prepared by dissolving four grams of methylene-blue in four liters, which was added to the top of the container. This solution was allowed to stand in contact with the container for one hour, after which time the dye solution was emptied:

Q. But taken out of the container?

A. Poured out. The container was again thoroughly washed with water, cut open and allowed to dry. Then of course it was examined for the amount of dye penetration. When the work was introduced I carried on the test up to a point where it became a routine matter or brought to a routine basis, and after that I allowed my chemists to prepare the paper ready for examination.

Q. What did the results of those experiments dis-1603 close with respect to the absorbency of the containers?

A. Every container that I examined showed some dye penetration, more or less. Of course, these readings were not exactly what we call true dye penetration. It was more a question of the area of the paper that was dyed. No chemical or mechanical measurements were taken. It was all done by the eye, by observation.

Q. You mean, you made no effort to determine quantitatively the amount of the penetration?

A. Quantitatively, that is right.

The Master: Was it along the base of the container?

A. I will explain. For convenience, we looked at the container and we noticed that the lateral corners or the bottom corners or the bottom surface showed dye penetration. That is how we reported that. We either reported two bottom corners had a medium dye penetration or heavy dye penetration, and the four lateral corners had a slight dye penetration.

Q. By lateral, you mean up and down?

A. Up and down, that is correct.

Mr. Schaefer: Q. Did you find any instances where the bottom of the container, away from the corners, indicated penetration?

A. Some containers showed considerable areas of 1604 dye penetration. We also examined empty milk containers and these showed relatively less dye penetration than those that were filled with either cream, milk or chocolate milk.

The Master: Q. What do you mean by empty milk containers? Empty paper containers?

A. Yes, empty paper containers.

Q. Do you mean you took containers which were to be used for milk or for cream or for chocolate milk, or do you mean containers which had actually been used and had contained those substances?

A. I am trying to bring out the fact that we also had several empty containers brought in, empty. They were never filled at any time. Those showed relatively less dye penetration than those that were filled, like with milk or cream and so on.

Q. I don't quite get what you are driving at there. On the first test that you described here, in which you saw some signs of methylene-blue, those were conducted on paper containers?

A. That came filled.

Q. Which had been filled?

A. Yes.

Q. And you emptied the milk contents, is that right?

A. Yes.

Q. And then later on you took some others that had 1605 never been filled?

A. That is right.

Q. But which were to be used in ordinary course for cream or for milk or for chocolate milk, as the case might be?

A. Yes. We only examined empty milk containers. We did not get cream or buttermilk or chocolate milk.

Q. Did you detect any difference in the amount of penetration when you took a container which had actually been used for milk—

A. Yes.

Q. (Continuing) —than you did when you took a container which had never been used?

A. Yes, there was a difference.

Q. I see.

A. Those that were not used showed very little dye

penetration. Those that were used showed considerable dye penetration.

Mr. Schaefer: Q. Did all of the empty containers which you used show evidence of penetration?

A. Yes.

The Master: Q. By empty, you mean both those that had been used and those that had not?

A. No. Those that were never filled with a dairy product.

1606 Mr. Schaefer: Q. How many of those empty containers did you examine?

A. There must have been about ten or a dozen.

Q. Where did you get those?

A. Where?

Q. Yes.

A. They were brought in by a milk inspector.

The Master: Q. They were not all paraffined, were they?

A. In and out.

Mr. Schaefer: Q. Did you find from those experiments that the dye penetration varied in the containers, depending upon the nature of the milk product which had been contained in them?

A. To a certain extent. It showed, for example, that the buttermilk seemed to show a lot more dye penetration than milk.

The Master: Q. That is, the container had been actually used once before?

A. Yes, it had had buttermilk in it, for example. That showed a lot more than the ones that had milk in it. Of course, we have all types of cases, but it indicates that certain types of containers, such as those containing buttermilk, seemed to show a lot more dyed area.

1607 Mr. Schaefer: Q. You mean after emptying the milk or buttermilk?

A. Yes. The dye, yes.

Q. Do you have with you any of the containers?

A. Yes, we have.

Q. On which you performed those tests?

A. Yes, we have.

Q. Will you get those for me, please?

A. Yes.

Mr. Gariepy: I take it, Master, that these are Pure-Pak containers that he is referring to. If not, I move it all be stricken.

The Witness: We have a mixture. We have two types.

Mr. Schaefer: Q. Do you have with you a sample which would show dye penetration, which you would characterize as light?

A. Yes, I have. Not so very many lights. They are usually medium or heavy. We could not find very many lights, except in the empty. Here is one I would call a heavy.

Mr. Schaefer: I would like to have this one marked Defendants' Exhibit 19 for identification.

(The container referred to was thereupon marked by the reporter Defendants' Exhibit 19 for identification.)

1608 The Master: Off the record.

(Discussion had off the record.)

The Master: We will adjourn until two o'clock.

Whereupon a recess was taken at 2 o'clock p. m. of the same day, Wednesday, October 11, 1939.

1609 * * (Caption) * *

Wednesday, October 11, 1939.
2 o'clock p. m.

Met, pursuant to recess.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

1610 The Master: You may proceed.

MATTHEW J. MARTINEK, a witness called on behalf of the defendants, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination (Continued) by Mr. Schaefer.

Q. You testified this morning, Mr. Martinek, that you performed experiments to determine the presence of suspended paraffin in milk contained in paper containers. Will you describe the procedure which you employed in performing those experiments, please?

A. A quart of milk was filtered through a Wisconsin sediment tester. This instrument is used normally for determining the visible sediment of milk. It consists of a

cylinder, the bottom of which has a detachable screen, on which is placed a filter disk, a cotton filter disk. The top of the container has a hinged cover, made air-tight with a rubber washer, which has an opening, and has attached an aspirating bulb.

Q. How large is the disk?

A. It is a little over an inch.

Q. In diameter?

A. But one inch in diameter is the area that usually collects the sediment. A quart of milk, therefore, was filtered through this apparatus, and the apparatus was then washed carefully with three washings of water at 110 degrees Fahrenheit, since butterfat melts around 100 to 105. This was to insure that all of the butterfat would be washed through the disk. We also made two washings with 95 per cent alcohol, 50 cc each, and one washing with absolute alcohol, 50 cc, to further insure a complete washing out of the butterfat.

Q. By washing you mean washing the Wisconsin sediment tester?

A. Washing the disk.

Q. The disk?

A. Washing the disk, so that the only thing that would remain would be the paraffin, if there was any.

Q. Yes.

A. The disk was then removed and placed into an evaporating dish, to which was added 75 cc of petroleum ether or ligroin. This was gently shaken in a water bath to cause the solution of the paraffin into the petroleum ether. The solution was then filtered through a dry filter paper, into a weighted platinum dish.

This operation was performed to remove any possible visible sediment and lint that might collect from the disk, following the solution of the paraffin into the petroleum ether.

The ether was again evaporated to dryness, and the platinum dish was then weighed to a constant weight.

Q. What do you mean by a constant weight?

A. We make two or three weighings and when the weight is within reason constant, we use it. There might be a little petroleum ether that might stay behind. We want to make sure the only thing we are weighing is the residue.

Q. In the case of the experiment you describe, what is that residue?

A. It would be paraffin.

Q. What did the result of that experiment indicate, with respect to the presence or absence of paraffin in the milk, in the paper container, which you emptied into the Wisconsin sediment tester?

A. This experiment indicated that we found paraffin ranging from one milligram all the way to 107 milligrams in a quart of milk.

Q. Is the procedure which you have described, in your opinion, as a chemist, a reliable method for determining the presence of suspended paraffin in milk?

A. Yes, sir. There is one step that I would like to bring in there yet. That is, we might be evaporating the 1613 same quantity, which would be 125 cc of petroleum ether, just separately, to get the value of what we call the non-volatile substance in it. That had to be subtracted from the paraffin, because there is always a small quantity of residue in petroleic ether that must be accounted for.

Q. And did you do that as a control?

A. Not as a control, but to be sure to get the true weight of the paraffin.

Q. Did that experiment indicate the presence of suspended paraffin in every paper container examined?

A. Yes.

Q. How many containers were so examined?

A. About 138.

Q. Now, in the course of your duties as chemist at the Board of Health, have you had occasion to perform any experiments designed to show at what temperature paraffin decomposes and the products of that decomposition?

A. I did.

Q. Will you describe that experiment or those experiments?

The Master: Q. Would you call that oxidation?

A. Oxidation?

Q. Yes.

A. In what case now?

1614 Q. The decomposition, do you call that oxidation?

A. Not necessarily. It might be a reduction. If you have a decomposition, a negative decomposition, like putrefaction, it is still decomposition, but there are no acid products formed. It would be ammonia that would be formed. It all depends on the type of decomposition. In this case it would be acidic products formed.

Mr. Schaefer: Q. Will you describe the procedure that you used in performing those experiments?

A. We obtained paraffin marked USP, standard U. S. Pharmacopoeia, having a melting point of about 125 degrees Fahrenheit. We took one gram of the sample of this paraffin and placed it into a test tube, and took another gram and placed it into another test tube. In the first tube we added water, 50 cc of water, heated above the melting point of the paraffin, around 150. There we are melting the paraffin with water heated to 150 and shaking it up thoroughly to dissolve any soluble acid products in the water. We determine the acidity of this water solution by two methods. One the Beckman hydrogen ion apparatus.

Q. Is that an apparatus commonly used for measuring acidity?

A. Yes, free acidity.

1615 Q. Yes.

A. And the other is the Lamotte colormetric apparatus.

Q. Is that apparatus also in common use for measuring acidity?

A. It is.

Q. Then what did you do?

A. In the second tube we placed into a water bath, which was heated by means of an immersion heater, electric heater, and which was kept constant with a thermostat.

Q. At what temperature was that apparatus kept constant?

A. The first test we ran at 165, then 175, then 185.

Q. Fahrenheit or centigrade?

A. Fahrenheit. All the way up to 205, I think. I have got the figures here. I haven't it exactly in mind.

Q. Go ahead.

A. This bath was heated for four hours, after which time the tube was removed, and water again heated to 150 was added, and the acidity again determined by the same method that we used on the first one. In other words, we prepared two tubes, one tube heated for four hours and the other not heated, and then determined the acidity of both.

Q. What was the result of the comparative acidity of

the one sample of paraffin which was heated to a point
1616 somewhat above the melting point and its acidity immediately determined, as compared with the acidity of the paraffin which had been heated to the temperatures you have mentioned for a period of four hours?

A. In the tube that was heated for four hours the paraffin showed an increase in the acidity.

Q. How was that increase in acidity measured?

A. By the two instruments, one the colormetric and the other by the hydrogen ion apparatus.

Q. To determine the acidity did you measure the acidity of the paraffin?

A. No, of the solution that the paraffin was shaken in.

Q. And that solution was what?

A. Water, double distilled water.

Q. What if anything does the fact that the acidity of the water was affected by the paraffin which was placed in it indicate with respect to the solubility of the acid products of the heating of paraffin in an aqueous medium?

A. There is an indication that acid products are formed when the paraffin is heated and, naturally, in order to determine the hydrogen ion concentration or the acidity, that had to be soluble in the water. There might be other insoluble acid products formed, but those were not
1617 determined.

Q. The products you measured and determined—

A. —were purely those that were soluble in the water.

Q. Do you have with you a table which you prepared showing the result of that experiment?

A. I have.

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 19 for identification?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 19 for identification.)

Mr. Schaefer: Q. Mr. Martinek, I show you Defendants' Exhibit 19 for identification. Will you examine it and explain the meaning of the entries in the lefthand column, which is headed "Lab. No. of Sample"?

A. That is the laboratory number that is placed on our chemical cards.

Q. And the next column, headed, "Electrometric Determination of pH" means what?

A. It represents the hydrogen ion concentration. It is really a 1 over the hydrogen ion, or the reciprocal, we call it.

Q. Is the pH the standard method of measuring degrees of acidity?

A. It is, one of the most accurate methods.

1618 Q. And by that method what is neutral?

A. Seven.

Q. And as acidity increases does the pH increase or decrease?

A. It decreases.

Q. So that a pH of 5.8, for example, indicates greater acidity than a pH of 7?

A. That is right.

Q. Now, will you explain the meaning of the entries in the third column of Defendants' Exhibit 19, designated as "Colormetric Determination of pH"?

A. The colormetric method is merely based on the dye change in the presence of various acid concentrations, and certain dyes have what we call sensitivity at certain concentrations. Now, using brom thymol blue, which is used between a range of, say, 7.2 down to about five or six—

Q. pH?

A. pH.

The Master: Q. What does "pH" stand for?

A. The hydrogen ion or the acidity in the solution. All we do here is to add a half of cc of the dye to 5 cc of the sample and compare that to a set of standards prepared, that are kept under a vacuum and away from light, so they would not deteriorate.

Q. And the meaning of the entries in the next column headed "Temperature, Degrees F." is what?

A. Those are the temperature at which the paraffin 1619 was heated for four hours.

Q. And the next entry headed, "Electrometric determination of pH" indicates what?

A. That is the readings we got after the paraffin was heated for four hours in the Beckman apparatus.

Q. And the next column, entitled, "Colormetric Determination of pH" indicates what?

A. The results we got by using the Lamatte colormetric apparatus.

Q. And the next column, entitled, "Average of Electrometric and Colormetric pH Reading" indicates what?

A. That is our average.

Q. The reading of those two methods?

A. Of those two methods.

Q. And the last column, entitled, "Increase in Acidity of (pH) due to Heating" indicates what?

A. The amount of increase at these various temperatures. At 165 we got an increase of three-tenths. At 175 we got an increase of 1, at 185 an increase of 1.4 and 1.2, which would give us an average of 1.3.

Mr. Schaefer: Would it be more convenient for you, Dr. Tonney, if we got you a copy of that exhibit?

Dr. Tonney: I don't think so.

The Master: Do you object to Dr. Tonney here?

Mr. Schaefer: No. I just want to call attention to 1620 the fact that he is here, though.

Mr. Gariepy: We know it, Mr. Schaefer. You told us all morning. Since Dr. Tonney first appeared you have told us. But Dr. Arnold has been here all during the lawsuit.

The Master: Just a minute.

Mr. Gariepy: I don't like these aspersions about Dr. Tonney, when Dr. Arnold has been here right along.

The Master: Dr. Arnold is engaged here in an official capacity with the Board of Health.

Mr. Gariepy: Right.

The Master: And Dr. Tonney is connected with no one in this case, unless he is connected with you, as one of your assistants.

Mr. Gariepy: I answer you as I did before, that he is interested in public health and he has a right to be here.

The Master: He has a right to participate in the hearing.

Mr. Gariepy: I don't know of any participation. Mr. Schaefer put him on the stand as his own witness.

The Master: I am just asking the question. Mr. Schaefer is objecting, apparently, to Dr. Tonney participating in the case, if he is not connected with you in some way.

There may be a great number of people who might be 1621 interested in this case, but all they can do is sit around and listen. They cannot get up here and start examining exhibits and stand behind the witness here, as if they were actually participating in the case. Now, I see counsel here in another case. He is sitting away over there in the corner. He is not actually participating in the case.

Mr. Gariepy: You are referring to Mr. Collins?

The Master: Yes. Now, if you say Dr. Tonney is assisting you, he will be just one of your assistants.

Mr. Gariepy: Master, I want the record to show that I

am open to getting all of the information I can get, from Dr. Arnold, from Mr. Schaefer or from Dr. Tonney or from anybody else, on this subject, and I know the Court is highly interested in getting all the information he can.

The Master: Then Dr. Tonney will be instructed, since he is not officially a part of this case, other than as a witness, that he has a perfect right to sit here and listen, he is welcome to sit here and listen, but that he should not participate in the case more or less as counsel or somebody connected with either of the parties in the case. If he wants to talk to counsel, that is all well and good with me, but when witnesses are being examined or when exhibits 1622 are being examined here, it is not necessary for Dr.

Tonney, or any one of the other spectators or part of the audience, to get up here and start looking at these exhibits, as if they are with one of the counsel in the case.

Proceed, Mr. Schaefer.

Mr. Schaefer: Q. Again referring to Defendants' Exhibit 19, when paraffin was heated to a slight degree above the melting point of the paraffin and then measured immediately, what acidity did you find?

A. It was really a slight alkalinity there.

Mr. Gariepy: Was what?

The Witness: A slight alkalinity.

Mr. Gariepy: Slight alkalinity?

The Witness: Yes.

Mr. Schaefer: Q. The pH measurements ranged from what points to what points?

A. You mean in this column here? (Indicating.)

Q. What was your lowest pH and your highest?

A. From 7.1 to 6.9.

Q. And after the paraffin had been heated for four hours, at temperatures ranging from 165 degrees Fahrenheit to 185 degrees Fahrenheit, what ranges of acidity in terms of pH, did you find?

A. From 5.7 to 6.8.

1623 Q. Is the test which you have described, the results of which are reported on Defendants' Exhibit 19, in your opinion a fair and proper method of determining the relative acidity of paraffin handled in the manner which you have described?

A. Yes.

Q. Referring back for a moment to the tests which you described with respect to the determination of the quantity

of suspended paraffin in paper milk containers, were those tests, in your opinion, fairly conducted to determine the presence and the quantity of suspended paraffin in milk?

A. Yes, sir.

Mr. Schaefer: That is all, Mr. Martinek.

The Master: I would like to ask one question there.

Q. To what do you attribute the fact that this methylene-blue adhered to the folds or corners of the interior of one of these paper containers, rather than to the walls?

A. For some reason or other those parts were not properly paraffined, and therefore a water soluble dye could enter the pores of the paper at those points.

Q. Would you say that the corners or folds might have been properly paraffined, but chipped off?

A. That might happen. We found cases where samples came into the laboratory frozen and we actually found 1624 chips of paraffin in the containers.

Q. Now, going to the tests that you conducted to determine the traces of paraffin that might be found in the milk, would you say that that paraffin represented chipped paraffin or not?

A. In some cases there were particles that could be very plainly visible to the naked eye, and in some cases we had to use a magnifying glass to notice them on the disk. In some cases we had a good sized piece that you could not mistake for anything else but a good sized piece of paraffin.

Q. Were all of the samples containers that you used in these experiments frozen?

A. No. They came in cold, but there were cases, once or twice, where they came in frozen, and in those cases I remember we found pretty good sized particles of paraffin.

Q. Would freezing at very low temperatures cause the paraffin to chip?

A. That is possible.

Q. Was the degree of coldness of those containers such as to cause them to chip?

A. They were frozen. The milk was actually frozen.

The Master: Go ahead.

1625 *Cross-Examination by Mr. Gariepy.*

Q. Are you a doctor? Are you Dr. Martinek or Mr. Martinek?

A. No, just a Mr. Martinek.

Q. You are not a milk sanitarian, are you?

A. No, I am not.

Q. Are you a bacteriologist?

A. No, sir.

Q. Who asked you to perform these tests that you performed and started on February 6, 1939?

A. My chief, Dr. John L. White.

Q. Did Dr. White perform any of these tests with you, or did you do them all alone?

A. As I mentioned before, I performed them to bring them to a routine basis, and then of course I had some of my chemists assisting the work, because that is what they are there for.

Q. Dr. White is a bacteriologist in the Board of Health, is he?

A. He is the chief of all of the laboratories. That includes the water laboratory, the—

Q. Doctor, you and I will save a lot of the Master's time and our own, and a lot of expense if you will just answer the questions. Is he chief in the bacteriological department of the Board of Health, yes or no?

A. Yes.

1626 Q. Where did you get the samples that you testified you performed these various tests on; do you know where they came from?

A. Most of the samples were brought directly from the bacteriologists, because they received them first.

Q. Do you know where they got them?

A. From the inspectors.

Q. Do you know where the inspectors got them?

A. No, I do not.

Q. You don't know?

A. No.

Q. Did you at any time in performing these tests ever ask the Fieldcrest Dairies, the plaintiff here, to send you any samples of paraffined containers without milk in them?

Mr. Schaefer: I object to that as immaterial.

The Master: He may answer. Did you or didn't you? Yes or no.

The Witness: A. Is the Fieldcrest this type here (indicating container)? Is this a Fieldcrest type?

Mr. Gariepy: Q. That is right.

A. I might have asked them, but I did not receive any.

Q. Who did you ask at Fieldcrest?

A. I asked Dr. White if he could obtain us a few.

Q. But did you ever ask any official or employee of

Fieldcrest Dairies to send you some samples, that you
1627 were going to perform tests?

A. No.

Q. At any time?

A. No.

Q. Do you know whether the Fieldcrest Dairies offered the Board of Health of the City of Chicago previous to February, 1939, to send them any sample containers without milk in them?

A. No, I do not know.

Q. You don't know anything about that?

A. No.

Q. Did you ever find any methylene-blue in milk?

A. No.

Q. Never?

A. No.

Q. Is it a part of milk usually, a component part of it?

A. No, it is not.

Q. It is not in there at all?

A. No.

Q. Where did you get these empty containers, if you know, Doctor; except that they came through some inspector, you say, and then through Dr. White, you don't know any more than that, do you?

A. No.

Q. Do you know anything about any adulteration of containers before you received them, or not, in regard to their condition?

A. No, I do not.

1628 Q. Did you perform any disintegration tests on these paper containers?

A. Yes.

Q. When?

A. During the period between. I would not know the exact date, but we did run some tests.

Q. Who asked you to do those?

A. Dr. White.

Q. Did you take the bacterial count on them, or did he do it?

A. I don't do any bacteriological work whatsoever.

Q. Who took the bacterial count on the disintegration tests that you performed?

A. What do you mean by disintegration tests?

Q. You said you performed some.

A. I mean, we dropped some of the containers to see how they stood up. That is all I mean.

Q. Is that what you call a disintegration test on a container?

A. Yes, sure, I would.

Q. Doctor, will you state in the record what you understand a disintegration test of a paper container to be?

A. I thought you meant whether the container would stand up under normal or rough usage. That is what I thought you had in your mind by disintegration.

1629 Q. You do not know of any other test, other than what you call standing up, do you?

A. No, that is right.

Q. Did you ever go to the mills to check this paper board?

Mr. Schaefer: I object to that.

The Master: Yes, sustained.

Mr. Gariepy: He is a chemist, and if he is a chemist he ought to know about the constituent and component parts of the paper board.

The Master: He merely testified to certain tests that he made.

Mr. Gariepy: Q. What is paraffin used for, Doctor, other than on such containers as you see here before you today, if you know, in the way of food products?

Mr. Schaefer: That is objected to as going beyond—

The Master: Read the question.

(Mr. Gariepy's question was read by the reporter as above recorded.)

The Master: I will let him answer, if he knows.

The Witness: A. It might be used for other types of containers.

The Master: Do you know? Let us not have what might be. Do you know of any other uses of paraffin in food products containers?

1630 A. Yes.

Q. What are they?

A. Butter containers are paraffined. Oyster containers might be paraffined. Sauerkraut sometimes is delivered in paraffined containers, and sometimes they use what they call oil containers.

Mr. Gariepy: Q. Are cheese containers, that you put cottage cheese in, that the dairy delivers, are those paraffined?

A. They might be, yes.

Q. Are the drinking cups you use at a soda fountain paraffined?

A. Yes.

Q. Are the straws that you sip things through, such as liquids, at a soda fountain, paraffined?

A. Yes.

Q. Did you run any paraffin tests on any of these other containers that are used at a soda fountain, drinking cups and straws and cheese containers, and things that they sell in stores?

A. No, sir.

Q. You did it just on the paper containers here?

A. That is correct.

Q. How many of these tests did you run on the Dean container, or we will call it the Fieldcrest?

1631 A. I forgot to go over the records, but there were quite a few.

Q. Did you run them on other containers than this?

A. Yes.

Q. What others?

A. The American Can Company containers.

Q. How many did you run on those?

A. I have to say we ran the two types and we ran some
1130 samples.

Q. How long a period of time were you running those samples?

A. Every day we received a certain number, and we started February 6th.

Q. And you ran them up to when?

A. We even ran some last Monday.

Q. And you have been doing that every day since February 6th?

A. There might have been some days where they skipped. I don't know.

Q. And where did you get the containers, all of these containers, up to last Monday; where did they come from, if you know?

A. If the bacteriologists got them first, we received them from the bacteriologists. If they did not request the bacteriological analysis or determination, they were brought directly to us by the inspector.

Q. Is it not a fact that paraffin is used by house-
1632 wives to seal the tops of canned fruit jars, when they can fruits, Mr. Martinek?

A. It is used by them, yes.

Q. Is that injurious, to do that?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Is this paraffin that you say you performed this experiment with and that you are acquainted with, this USP 11, which has a melting point of 125 degrees Fahrenheit, injurious to health?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: I cannot understand that ruling, Master. I am awfully stupid and dumb, but this man is trying to say that paraffin is bad.

The Master: He didn't say it was bad. He just said it was found in the milk.

Mr. Gariepy: He said it gives out certain acids and things at temperatures from 165 to 185, that it is bad.

The Master: But he is not a doctor. He don't know whether that is injurious to health. He is a chemist.

Mr. Gariepy: Q. Do you know that as a chemist?

A. I do not know.

Q. You do not know?

1633 A. I have not studied that phase of the work.

Q. Did you ever have any experience with milk bottles with paraffin on being heated by reason of exposure to the sun at 165 to 185 degrees?

A. No, I have not.

Q. But you performed this test on here with regard to finding the acidity of paraffin at 165 to 185 degrees, referring to Exhibit No. 19, didn't you?

A. Yes, sir.

Q. And those are the only temperatures you employed in testing that?

A. There was a range from 165 to 205.

Q. All right, but you performed them at those temperatures?

A. Yes.

Q. Would you expect to find any acidity or be able to detect any acidity forming at lower than 165 degrees of paraffin being exposed?

A. I doubt it.

Q. You doubt it?

A. Yes.

Q. Did you perform any tests concerning paraffin on paper milk bottle caps?

A. No, sir.

Q. Are they paraffined?

A. They might be.

Q. And the paraffin might chip off those caps and go into the milk, the cream line at the top, as they 1634 usually call it, is that right?

A. That might.

Q. Would that be injurious, in your opinion, as a chemist, to health?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. If this paraffin that you say you found in these containers and the containers themselves were frozen, would there be any reason why in your opinion the paraffin would not freeze on a paper cap at the same temperature?

A. It might.

Q. The same thing?

A. Yes.

Q. How long was this milk that you say you had in these containers on which you performed this test of washing it out and putting in the methylene-blue—how long was it left in the containers before you did that?

A. I would not know the exact time. They were all dated, but they were all brought in practically the same day by the inspector. They would go out in the morning and bring them in and at noon time.

Q. I mean, how long did you keep them before you tested them?

1635 A. We tested them immediately.

Q. The same day.

A. The same day they came in, yes.

Q. In these same containers that you referred to there—look at the one on the table, with methylene-blue in the corners—did you find any milk or any leakage in here?

A. No.

The Master: I might ask a question right there on methylene-blue.

Q. You took these containers while they were still damp from the milk or the water that you used to rinse out the containers, didn't you?

A. Yes.

Q. Would you say methylene-blue liquid or solution that you used there was as thick a solution as milk?

A. No.

Q. Would you say there is any difference in the penetrating powers of a liquid such as the methylene-blue solution and milk?

A. There might be a difference in penetrating power, but that was not so much measuring the penetrating power from the surface area that showed in the paraffin. In other words, you could not get this dye on here if 1636 there was paraffin present there, because paraffin is impervious to water. It is like pouring water on a duck's back.

Q. What I am trying to get at is that perhaps less paraffin there might not resist methylene-blue solution, but it might resist milk.

A. This would indicate no paraffin here.

Q. No paraffin at all?

A. No.

Q. In other words, you would say that the methylene-blue solution would make that stain there only if there were no paraffin?

A. Or very little.

Q. That is what I am getting at. If there is very little paraffin there, little enough to permit a penetration of methylene-blue, might that same amount or small amount of paraffin still resist the penetration of milk?

A. I would say no, because by little I mean there were spots here that might have little patches of paraffin, but the majority of it had no paraffin, otherwise that dye could not penetrate that paper.

Mr. Gariepy: Q. Do you know of any more severe dye to perform this test with, in regard to detecting the extent and sufficiency of the paraffin, than this meth- 1637 ylene-blue?

A. Other dyes were used, but this was used for convenience.

Q. Do you know of any more severe dye?

A. No, I do not. There are all types. You can use methylene-red or methylene-orange or methylene-violet.

Q. Are there any more severe dyes than those to perform those tests with, is my question to you?

A. I would say no.

The Master: What do you mean by severe?

Mr. Gariepy: One that has the most penetrating qualities.

Mr. Schaefer: Do you know, Mr. Martinek?

The Witness: Yes.

Mr. Gariepy: Q. You know what I mean, don't you, Mr. Martinek?

A. Yes.

Q. Without Mr. Schaefer helping you?

A. Yes.

Q. Did you have dealings with anybody at the time you were requested to perform these tests, other than Bacteriologist White, to whom you referred, in the Board of Health?

A. Yes.

Q. Who?

A. Mr. Krueger.

1638 Q. Anybody else other than Mr. Krueger?

A. The inspectors that brought the samples in.

Q. I mean anybody in authority. Mr. Krueger is head of the milk division, isn't he?

A. Yes.

Q. Did you have any conversation with Dr. Arnold, a member of the Board of Health, concerning these tests?

A. Yes.

Q. You did?

A. Yes.

Q. When were those conversations that you had with him concerning the performing of these tests?

A. When we completed some of these tests, Dr. Arnold took a look at the results of our experiments.

Q. Did you collaborate with him before performing these tests and get any suggestions from him as to the procedure to be developed?

A. No.

Q. None at all?

A. No.

Q. Did you get them from Dr. White only?

A. Dr. White.

Q. How is this paraffin that you heated affected, if at all, when it cools again, after you have heated it to 165 to 185 degrees?

A. It will solidify.

1639 Q. And is there anything wrong with that, from a chemical standpoint, if it solidifies?

A. That is a normal physical process. If you heat it, you melt it, and if you cool it again it will solidify or congeal.

Q. Have you run any other tests concerning paraffin on paper containers of any kind, other than those you have just testified to on the Dean container and the American Can container?

A. No, sir.

Q. Do you know anything about the action of methylene-blue upon these drinking cups that are used at the soda fountains?

A. No, sir.

Q. Or upon paper containers that are used at soda fountains for use in selling liquids?

A. No, sir.

Q. You don't know anything about those?

A. No, sir.

Q. Did you test the milk, Doctor, to see if the acidity of the paraffin was reflected in the milk?

A. No, sir.

Q. By taste or otherwise?

A. No, sir.

Q. In performing this test of paraffin and heating it from 165 and 185 and even above that, I think you said you heated them, are these acids you found known 1640 as weak organic acids, or not?

A. There are some oxy-hydro carbons. The nature of them I do not know.

Q. You don't know whether that is harmful to health or not?

Mr. Schaefer: That is objected to.

The Master: He doesn't know.

The Witness: A. I don't know.

Mr. Gariepy: Q. Is there any way by which you can illustrate to the Master how much one milligram of paraffin is in size, so we can get some idea of what you are talking about?

A. Oh, it would be a small quantity.

Q. You say one milligram, that you had to use the glass on, if I remember right.

A. (Witness peels off and lays before the Master a small piece of paraffin.)

The Master: Is that a milligram?

The Witness: It would be purely a guess, but it is a small quantity.

The Master: Let the record show the witness took a knife and peeled off a bit of paraffin from the container before him, being about a quarter of an inch in length and—

The Witness: Very thin.

1641 The Master: (Continuing)—and probably about a half an inch in width.

Mr. Gariepy: Q. Do you know of any other tests that were performed by the Board of Health or any employee of the Board of Health referring to the absorption of paper containers?

Mr. Schaefer: I object.

The Master: Let him answer.

The Witness: I do not.

Mr. Gariepy: Q. Were those empty containers that you referred to in your testimony on direct American Can containers or Fieldcrest Pure-Pak containers?

A. American Can.

Q. American Can containers?

A. Yes, sir.

The Master: Will you read that question and answer? (Record read as above recorded.)

The Witness: Those that came in empty.

The Master: Those that came in empty?

The Witness: Yes.

The Master: I notice you have produced some containers here.

The Witness: Those were filled.

Mr. Gariepy: Q. Referring to the Fieldcrest Dairy containers, those were filled, is that right?

A. Yes.

1642 Q. In these tests that you related on direct?

A. I beg your pardon?

Q. That is, in the tests that you related on direct examination?

A. Yes.

Q. Are you still performing tests today on Pure-Pak containers that are brought into your department filled with milk?

A. I don't know if any came in today, but there were some in yesterday.

Q. And did you perform tests on them with regard to the paraffin and the suspension of paraffin?

A. No.

Q. What tests are you performing on them now, Doctor?

A. Just the methylene-blue.

Q. And that is all?

A. Yes.

Q. And for what purpose?

A. I beg your pardon, we did run some paraffins on cream.

Q. On cream?

A. On cream bottles.

Q. And for what purpose are you performing these methylene-blue tests on these Pure-Pak containers now?

A. I don't know. They are just submitted and I have to accept them.

Q. Who submitted them to you?

A. The inspectors.

Q. Who gave you orders to go through with these tests?

1643 A. Those were given to me by Dr. White. Just keep them up as long as they are brought in. When they quit, I will quit.

Q. And the same on the American Can containers, the empty ones that come in the same way, you just keep them up?

A. Not empty. They are filled.

Q. The American Can are filled or empty?

A. Filled.

Q. The American Can are filled, too?

A. Sure.

Q. Do you know what temperature of paraffin is applied to these containers when they are filled with milk?

A. I visited the University of Illinois plant—

Q. When?

A. I don't know. A year or two years ago. I don't recall which.

Q. All right.

A. I was up there with Mr. Krueger and Dr. White.

Q. Who did you see there with regard to the Ex-Cell-O machine and the containers, when you were there?

A. Dr. Tracy.

Q. And did you see the machine in operation then?

A. I did.

Q. Did you notice the paraffin that was being
1644 used, with regard to the temperature that was being applied?

A. If I am not mistaken, I think it was around 170, but I could not swear to it now.

Q. You don't know?

A. I am not positive now, because I do not recall.

Q. And after you went there two years ago, did you do anything as a chemist upon these containers, to ascertain their quality, with regard to sanitary fitness for use or in the use and sale of fresh fluid milk, other than what you testified to on fresh fluid milk in February, 1939?

A. Yes.

Q. When?

A. Before we visited the plant we received some containers?

Q. From whom?

A. From the inspectors. The usual inspector that brings them in.

Q. What is his name, this inspector?

A. Different inspectors at different times.

Q. Name some of them. I would like to make their acquaintance, Mr. Martinek.

A. I don't recall now.

Q. Can't you recall any of them for me? Be a little helpful. I have got to be dependent on you.

A. Mr. Clauson, I think, brought in some samples.

1645 Q. Mr. Clauson.

A. He brought in some yesterday or the day before.

Q. What is his first name?

A. I don't remember his first name.

Q. Give me another one of these inspectors that brought in these containers.

A. Mr. Larson.

Mr. Schaefer: Do you want some more help? Did Metzger bring any in?

The Witness: I don't recall right now. Paul, do you remember their names?

Mr. Schaefer: No, no. Never mind that.

Mr. Gariepy: Q. Did Mr. William Green bring any in?

A. Who?

Q. William Green.

A. No.

Q. That is all you remember?

A. As a matter of fact, Larson was bringing them in for a very long time.

Q. I think you were going to tell me what you did after you went down there two years ago.

A. Yes. We were trying to determine the stability of the containers under various usages and handling and under various temperatures, so we received the containers, and one set of them I placed into an ice box, to simulate winter conditions; another one, at 98.6 degrees in an incubator, to simulate summer conditions. Another set we placed at room temperature. Now, it happened that those that were kept at room temperature practically broke down, after exposure for about five hours or so at room temperature.

The Master: Q. What did they have in them?

A. Milk. That is the time we brought out the fact that the paraffin should have a higher melting point, and then also the paper should be a little heavier. Those were some of the first containers that were made. They did not hold up very good, so they had to do a little improving on them. Those also did not have that particular type of flap.

Q. The pouring lip, you mean?

A. The pouring lip. There is a possibility of this material getting into the milk and somebody accidentally swallowing it.

Q. You mean the fastener at the top?

A. The fastener at the top, the clip here.

Mr. Gariepy: Q. You say there is a possibility of that metal fastener, stapled through, getting into the milk now?

A. Not now. At the time I saw the first set of 1647 containers. Also we brought out the fact that when you open this container there is always the possibility of contamination by handling. That is the reason they put this on later.

Q. Did they tell you that was the reason or did you make complaint to Fieldcrest Dairy about it?

A. I made no complaint. I just made a verbal report.

Q. Did you make any report on these containers to the Fieldcrest Dairies, voicing these objections of the Board of Health?

A. I never make any reports outside. All my reports go to Dr. White. What he does with them, I don't know.

Q. Did you make that report to him?

A. Yes, sir.

Q. And those things were before the present pouring

lip was put on, that you refer to, this criticism that you made?

A. That is right.

Q. Have you any criticism of this pouring lip?

Mr. Schaefer: That is objected to.

The Master: Q. Have you made any tests on this?

A. No. You see, I am not a bacteriologist. I made no bacteriological tests. I made purely a physical examination, as requested.

1648 Mr. Gariepy: That is all, Mr. Martinek.

Mr. Schaefer: That is all, sir.

If the Master please, I now offer in evidence Defendants' Exhibit 19.

The Master: What is that?

Mr. Schaefer: The results of the tests Mr. Martinek made.

Mr. Gariepy: My objection is that he says he performed tests on this container and ours, that they were filled with milk, and it is not clear from his testimony, nor is there any foundation laid showing this paraffin test he has told about in his testimony on Exhibit 19 was taken from our container.

The Master: Let me ask Mr. Martinek a question.

Q. Was there any difference in the results that you obtained from your tests upon the two types of containers?

A. They varied considerably, the two types. One day we had quite a bit of staining, and sometimes not quite so much, in both cases, but we did not receive any Fieldcrest empty containers to test.

Q. This Exhibit 19, this is merely as to paraffin?

A. This is purely a sample of paraffin that had a melting point of 125.

Q. That has nothing to do with the staining?

A. No.

1649 The Master: Let us confine ourselves to the paraffin test.

Mr. Schaefer: That paraffin test had nothing to do with either type of container.

Mr. Gariepy: Then it has no basis in this lawsuit, if it does not apply to the containers here involved, on which he made the tests.

Mr. Schaefer: The witness has said it complies with U. S. Pharmacopeia 11, which is the type of paraffin used

here, and now that ~~that~~ paraffin did not come from one of these containers. Obviously he is not going to scrape paraffin off of these containers to run the tests with.

The Master: Off the record.

(Discussion had off the record.)

Redirect Examination by Mr. Schaefer.

Q. Mr. Martinek, you have testified here to three tests which you have conducted. You have testified to tests as to dye penetration by methylene-blue, is that correct?

A. Yes, sir.

Q. You have testified to tests which you have performed to determine the presence and the quantity of suspended paraffin in milk contained in paper containers?

A. Yes, sir.

Q. And you have testified with respect to tests reported in Defendants' Exhibit 19, indicating the effect of the continued application of heat upon the acidity of the paraffin, is that correct?

A. That is correct. Any paraffin that is to be used around containers that are supposed to be used for eating purposes and so on must meet the USP standards, or should meet them.

The Master: Q. Then this Exhibit 19 does not refer to any particular container, does it?

A. It does not.

The Master: I will overrule the objection and the Exhibit may be received in evidence.

(Said table containing paraffin tests, so offered and received in evidence, was marked DEFENDANTS' EXHIBIT 19, and is attached hereto and made a part hereof.)

Mr. Schaefer: That is all, Mr. Martinek.

Recross Examination by Mr. Gariepy.

Q. Mr. Martinek, how much paraffin did you use in performing this test shown on Exhibit 19?

A. Five grams.

Q. That is a very small quantity, is it not?

A. Yes.

Q. And that reacts better to heat and more effectively to heat than a larger amount?

A. No, because the container simulates a large quantity. In other words, a larger quantity might have to be heated more thoroughly. You might get more decomposition with the water bath.

Q. That is what I am saying. You have less heat using this five grams than in a larger amount?

A. Yes.

Q. You will have to use more heat on the container?

A. No, sir.

Q. To get more effect?

A. Not on the container. In the bath.

Q. In the bath?

A. Yes. It might even get worse than what I have got.

Q. You have got to heat it higher?

A. Yes.

Mr. Gariepy: That is all.

1652 *Further Redirect Examination by Mr. Schaefer.*

Q. Now, see if I understand that, Mr. Martinek. Would the effect of acid reaction of paraffin to heat be in any way influenced by the quantity of paraffin subjected to the heat?

A. Yes.

Q. And what would that effect be?

A. Well, I bring it out this way: If you have a large amount of material to heat, a water bath might not be sufficient to keep it at that temperature, so you have to use higher steam for heat, so the decomposition around that might be greater than in my test, where I ran them on the small amounts, using five grams, so under actual operating conditions in the plants the decomposition might be greater than what I obtained here by my method.

Mr. Schaefer: That is all.

Further Recross Examination by Mr. Gariepy.

Q. Do you ever make any paraffin tests in a plant concerning this matter of acidity?

A. No, I have not.

Mr. Gariepy: That is all.

1653 Mr. Schaefer: That is all.

(Witness excused.)

Mr. Schaefer: We have a witness here who has not been sworn, Master.

ERNEST REUTER, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. Will you state your name, please, sir?

A. Ernest Reuter.

Q. Where do you live, Mr. Reuter?

Mr. Gariepy: May I interrupt? (Addressing a spectator:) Who are you from?

Mr. McIntosh: My name is McIntosh and I just happened to be Mr. Reuter's counsel. I am taking no part in the hearing at all.

Mr. Schaefer: Q. Where do you live, Mr. Reuter?

A. I live on Route 20, near Bartlett. That is the Elgin post office there. R. F. D. Route 20, Box 170.

Q. Illinois?

A. Illinois, Cook County, Illinois.

Q. What is your occupation, Mr. Reuter?

A. Manager of the Milk Dealers Bottle Exchange.

1654 Q. In Chicago?

A. In Chicago.

Q. How long have you been manager?

A. Ever since its inception in 1918.

Q. And you have been manager continuously since 1918?

A. I am the only manager they ever had.

Q. Are you familiar with the operation of the Milk Dealers Bottle Exchange, with respect to the handling of bottles received by the Exchange?

A. I am.

Q. Will you describe the procedure employed at the Milk Dealers Bottle Exchange, with respect to the handling of milk bottles received by the Exchange?

A. Well, our trucks pick them up from sources or places where they have gone astray and bring them into the Bottle Exchange. They are put on a conveyor and they go down to the basement and through the washing machine. That is all of the bottles that come from the dealers themselves. There is a small percentage, 3.99, to be exact, of the bottles that come from the junk dealers. Those bottles are first given a soaking and are washed by hand, and after they are washed by hand they are

then put through the washing machines, the automatic washers.

1655 Q. Now, with respect to those bottles, the 3.99 per cent that comes from junk dealers, in what are they soaked?

A. They are from dumps, that come in, not from junk dealers, but from different dumps, and collectors there.

Q. In what are they soaked?

A. In an 8 per cent alkali solution, caustic soda.

Q. For how long are they soaked?

A. As a rule, 24 hours.

Q. Then what is done with them?

A. They are washed and brushed by hand. They use a rotary brush. They put the bottles over a rotary brush, by hand, a rotating brush, and they are brushed inside and outside, and all the visible dirt taken out, until they are perfectly clean to the eye.

Q. Then what is done with those bottles?

A. They are then put through the automatic washing machines.

Q. Will you describe that automatic washing machine, please?

A. Yes. It is a five-compartment machine and there are pockets; it is fitted with pockets, sixteen around. We have three of those, by the way.

Q. You have three machines?

1656 A. Yes, we have three washing machines. Those pockets then are connected up to a chain, which travels up and down, in this sort of a motion (demonstrating), through different sections.

The Master: Q. By this sort of a motion, you mean up and down?

A. Up and down, just as I use my hand.

Q. I know, but the record has to show it.

A. Up and down, in the water in the first pocket, and then a second up and down in the second pocket, and a third, and each time they go into a different caustic solution.

Mr. Schaefer: That motion is like a roller coaster?

The Witness: Yes, only it is very slow. It gives it time to soak in there and it is very slow, and when it comes up, goes up, it empties whatever solution is in the bottle, and the bottle goes down in the next compartment and is again filled and soaked while going through there.

The Master: Q. What is that solution?

A. It is a caustic soda solution.

Mr. Schaefer: Q. Then what is done with them?

A. After it has gone through these five different compartments, which are heated up to a certain heat—
1657 they have a certain strength of solution in each one of them; it varies—then they go through a brushing operation. They go through rotary brushes, that brush the outside and the bottom, and then they go on a little further, to rotating machines that spin. They are vertical and spin in a vertical position. They enter up into the bottle. Then they are rinsed with a spray, and then they go through another set of brushes. They get two brushings and two sprays, and after that they get a thorough rinse. It is all automatic. The machine does that. The machine has a capacity of about 180 a minute.

Q. What temperatures are those solutions kept at, if you know?

A. Yes. I made a note of it here.

The Master: Q. By the way, the solution that is used with the hand brushes and the solution that is used in this roller-coaster affair, are the same, are they?

A. No. The hand brushing is a little more strong solution, but they don't get their hands into it. They take it out of that vat. It is in a perforated sort of a basket, and it is lifted out of the strong solution and put into water
1658 and then the man handles them by hand. By that time practically all of the dirt has been loosened up, so it brushes off very rapidly.

Q. That is a stronger solution than the solution in the bucket device?

A. Yes, because the bottles are a little dirtier then. It is a sort of metal tank, instead of a wooden tank. The stronger solution is in a metal tank, and the bottles empty out and the solution stays behind.

Q. You were going to give us the temperature of the water?

A. What was it you wanted? The temperature or the solution?

Mr. Schaefer: Q. The solutions?

A. The solution in compartment No. 1 is 2.4, in compartment No. 2 it is 2, in compartment No. 3—

The Master: Q. What is that you are giving now?

A. The caustic.

Q. You are giving us the solution now?

A. Yes.

Q. You say compartment No. 1 is how much?

A. 2.4.

Q. What is that, per cent?

A. 2.4 per cent of the solution.

Q. What is the second compartment?

A. Two per cent. The third is 1.9. The fourth is 1.659 1.8 and the fifth is 1.5.

Q. That is in this second device that you were talking about, the five compartments?

A. The five compartments, yes.

Q. Go on.

A. The temperature in compartment No. 1 is 120 degrees Fahrenheit, in No. 2, 160 degrees Fahrenheit, in No. 3, 150 degrees Fahrenheit, in No. 4, 140 degrees Fahrenheit, in No. 5, 120 degrees Fahrenheit. These strengths of solutions and the temperatures of the water have proven to us to produce a clean bottle.

Mr. Gariepy: I object and move that be stricken. There is no question asked on that at all.

The Master: Yes, it may be stricken.

Mr. Schaefer: What was the ruling?

The Master: It may be stricken. Put another question.

Mr. Schaefer: Q. From your experience, Mr. Reuter, are you able to state whether or not the washing of bottles in the solutions and at the temperatures and by the method which you have described will result in a clean bottle?

A. Absolutely.

Q. You have an opinion, and that opinion is what?

A. That the bottle is absolutely clean.

1660 Q. Now, is every bottle received by the Bottle Exchange washed in the five-compartment washers which you have described?

A. All of them, unless they come in with tar or concrete or cement or that sort of stuff. We don't attempt to wash those. We simply break them.

Q. Are the bottles inspected at the time of their arrival at the Bottle Exchange?

A. All bottles are inspected at the time of their arrival at the Bottle Exchange and bottles that appear to have a little more dirt on them than others are set aside.

Q. And what is done with those bottles?

A. If we think they can be washed, we wash them, and if they cannot be washed, we break them.

Q. Do you dispose of the broken bottles?

A. Not those kind. Yes, we have to throw that stuff in the dump. We can't even sell it for cullet. Clean glass we can sell for cullet.

Q. And you do sell any broken clean glass for cullet, do you?

A. Yes.

Q. What is cullet?

A. Broken glass.

The Master: Q. What is it good for?

A. They use it in the glass factories in making new glass. It acts a flux. It is much cheaper for them to
1661 make glass when they have a flux to start the glass to melting, just like in soldering you have to have a flux before you can solder.

Mr. Schaefer: Q. All bottles received at the Bottle Exchange from dumps are subjected to two washing and disinfecting treatments, is that correct?

A. They are.

Q. For how long has the Bottle Exchange pursued the practice which you have described, with respect to the washing of bottles?

A. We put our washing machines in—we ordered them in May, some time during May, 1935, and we got them into operation some time in December, of 1935.

Q. And at whose instance did the Exchange begin to wash bottles?

A. At my suggestion, my recommendation to the Bottle Exchange and the Health Department, also, if we ought to wash bottles.

Q. As a matter of fact, you invented the type of washer used at the Exchange, didn't you?

A. No.

Q. You did not?

A. No, I did not.

Mr. Schaefer: Cross-examine.

Q. Mr. Renter, what is this Milk Bottle Exchange? Is it a corporation or is it owned by some individuals or what is it?

A. It is a corporation.

Q. And who are the officers, if you know?

A. The president is Mr. R. W. Nessler. The treasurer is F. H. Kullman. The secretary is F. A. Webb. The vice-president is J. H. Skrezypinski.

Q. Are any of the four men that you mentioned as officers connected with the milk industry, other than as officers of the Milk Bottle Exchange?

Mr. Schaefer: That is objected to. That is beyond the scope of the direct examination. The direct was restricted to the procedure followed in the plant.

The Master: I will let him answer.

The Witness: A. Yes.

Mr. Gariepy: Q. And what part of the milk industry are these four men associated with or connected with, if you know?

A. Just milk distribution.

Q. I mean, with regard to dairies.

A. Well, they have dairies.

1663 Q. They are all dairymen?

A. Yes.

Q. And who are the stockholders of this corporation, if you know?

Mr. Schaefer: That is objected to.

The Master: Overruled.

The Witness: A. The stock is held entirely by the milk industry, except I own one share.

Mr. Gariepy: Q. And by milk industry, who do you refer to, Mr. Reuter? Do you refer to dairymen?

A. Yes.

Q. Men that operate dairies?

A. And their employees.

Q. And their employees?

A. Yes.

Q. Is there any of that stock, if you know, for sale now?

A. None for sale. It is all sold.

Q. And has that been the condition since they started in 1918?

A. Oh, no. That has not been the condition. That is only recently. When we had no more to sell, we stopped selling.

Q. Do you also pick up milk bottles for people who are not members of the Milk Bottle Exchange?

A. We pick up milk bottles—it is impossible to pick
1664 up bottles without getting some that are not members.

Q. And what does a membership entitle one to, a

member of the Milk Dealers Bottle Exchange, as compared with one who is not a member of the Exchange?

Mr. Schaefer: I object to that.

The Master: He may answer.

Mr. Schaefer: That is far beyond the direct.

The Master: He may answer.

The Witness: A. They all get exactly the same service.

Mr. Gariepy: Q. Is there any difference in the rate charged?

A. No, excepting we have a non-member patron who we give contracts to. The contracts are all the same, as far as service is concerned.

Q. Do you charge so much for returning the member his bottle?

A. Yes.

Q. How much do you charge the non-member for returning his bottle?

A. The same as the member.

Q. There is no difference in the rate?

A. No difference in the rate.

The Master: What is the good of being a member, then?

Mr. Gariepy: Q. What are the advantages of membership, Mr. Reuter? Tell the Master.

1665 A. The advantages of membership?

Q. Yes.

A. Well, there are certain—well, I wouldn't know exactly if there is any special advantage. We have a discount to stockholders.

Q. That is what I am referring to. What is that discount that stockholders get?

A. It all depends. They get a certain discount on the net bill that they owe the Milk Dealers Bottle Exchange each month.

Q. For picking up and returning their bottles?

A. We pay three-quarters of a cent for all the bottles we take in.

Q. Yes.

A. We charge a cent and a half for all bottles we send out, regardless of who they go to.

Q. What are the advantages of a member as compared with one who is not a member of the Milk Dealers Bottle Exchange, who gets bottles?

The Master: He says he gets a discount.

The Witness: What has that got to do with this?

Mr. Gariepy: I want to know the difference.

The Master: What is the materiality of that in this case?

All we are doing is running up a record here.

1666 Mr. Gariepy: I don't know why Mr. Schaefer put him on, then, as far as that is concerned.

The Master: Well, to explain some of your testimony, too.

Mr. Gariepy: Q. You said in answer to Mr. Schaefer's question that the bottles were absolutely clean bottles when they got through this washing.

A. Yes.

Q. Did you ever perform any tests on those bottles to ascertain the bacterial condition of them, Mr. Reuter?

A. No, but our laboratory men did.

Q. You did not, did you?

A. No.

Mr. Schaefer: Did you say the laboratory men did?

Mr. Gariepy: Mr. Schaefer, I have got him now.

Mr. Schaefer: Yes, but I want to hear what the witness said.

The Master: He said, but our laboratory men did.

Mr. Schaefer: I didn't hear him.

Mr. Gariepy: Q. Do you know anything about how your bottles are handled after they leave the Milk Bottle Exchange? Do you supervise that handling after they leave there?

A. No. We just deliver them to the owner. I 1667 know how they handle them. They are all washed again and sterilized.

Q. Do you ever supervise the washing and see how they are washed after they leave the Milk Bottle Exchange?

A. No, but I have seen it done often. I used to be a supervisor and milk dairy inspector at one time and I know all about it.

Q. When did you act as such?

A. From 1909 to 1916.

Q. And then you went with the Milk Bottle Exchange?

A. Most of that time I was supervisor.

Q. Most of that time you were supervisor?

A. I had supervision of it

Q. Have you done any of this work since 1916?

A. No, not for the city.

Q. Or for the Milk Bottle Exchange, in regard to going to the dairies?

A. Yes. My business as manager of the Bottle Exchange has carried me into the dairies quite frequently.

Q. Do you go into the dairies now?

A. Absolutely.

Q. Every day?

A. Not every day.

Q. Do you follow the bottles as they leave the Milk Bottle Exchange to William Croak's dairy in La-
1668 Grange, who is a member of the Milk Bottle Exchange?

A. The Bottle Exchange does. I don't.

Q. I am asking you.

A. No.

Q. Do you know anything about how Croak washes his bottles out there, how and when? Do you know that?

A. Sure we know.

Q. How do you know, if you were not there?

A. Because our men see it. Listen, you know. Why ask such foolish questions?

Q. You are a witness on the stand here, sir.

The Master: Q. Do you go to every single one, or just some of them.

A. Our men go to every single one, from the smallest to the largest.

Q. Do you personally go?

A. I have been. I don't make a practice of it regularly, because I am only the manager.

The Master: That is what he is asking you.

Mr. Gariepy: That is what I am asking you, yes.

The Master: Q. But you go to some of them?

A. Yes.

Q. Right along?

A. When something particular happens, I go.

1669 Mr. Gariepy: Q. What do you mean, when something particular happens?

A. When something is called to my attention, some infringement of our contract.

Q. With regard to washing or cleaning or what?

A. No.

The Master: Whatever is his business.

The Witness: Whatever is my business, yes.

Mr. Gariepy: Q. Will you look at Exhibit 66 and tell me whether that is the same Milk Bottle Exchange that Mr. Schaefer asked you about (handing photograph to the witness)?

A. Yes, that is the picture of the Milk Bottle Exchange.

Q. And Exhibit 67, is that one of your trucks?

A. That is one of our trucks, yes.

Q. And the same thing on Exhibit 68?

A. Yes, that is one of our trucks.

Q. And Exhibit No. 70, that is a truck of yours, in the Milk Bottle Exchange?

A. Yes.

Q. And the same thing on Exhibit 71, picking it up at that place of business?

A. Yes.

Q. Or whatever you call it there.

A. What?

Q. What do you call that?

1670 A. I don't know where that was taken. It looks like it was taken at a junk yard, or something, or a dump.

Q. Do you have any figures as to exactly how many bottles these trucks bring in each day from the dump yards?

A. We can tell you that to a dot.

Q. How many?

A. Listen. It is a book that big. (Illustrating.)

Q. I am asking you now, Mr. Reuter, do you know?

Mr. Schaefer: You have not asked him.

Mr. Gariepy: Please, Mr. Schaefer, let him answer.

The Master: Let him answer.

Mr. Gariepy: Q. Do you know. Don't look at anything. Do you know offhand, without reading any notes, how many bottles your people pick up at the dump heaps, as you put it, each day?

A. That varies.

Q. It varies from what figure to what figure?

A. It varies at the present time from 35,000 to 60,000.

The Master: Q. What? Per day or what?

A. That is per month. I don't know. I won't answer unless I can look at these.

The Master: All right, now, put another question.

1671 Mr. Gariepy: Q. Where did you get those figures that you have got there?

A. Off of our books.

Q. You can't recall now, is that right?

A. No.

Q. You may look at that and tell me how many bottles a day you bring up off the dump heaps.

A. Here is what I have got here. The volume of bottles handled per month, for the month of September, by the Bottle Exchange, was 2,111,969, and 84,312, or 3.99 per cent were from the dumps.

Q. Who made that up and took it from the books, Mr. Reuter, if you know?

A. One of our clerks.

Q. Did you tell him to?

A. Absolutely. I knew I was coming here. I thought you wanted to know something.

Q. With regard to the treatment that you give to milk bottles that you say you picked up from dumps, is there any different treatment applied to those bottles that you get at junk yards?

A. Yes, we are just a little bit more critical with them, because they are not as clean.

Q. Are you able to ascertain whether a bottle comes from a junk yard or from a dump yard?

A. We have a record of everything that comes in. 1672 We have a sheet telling the number of bottles on there, where they come from, who picked them, who signed for them, and who checked them in. Every bottle is checked. We could not do business without doing that. We can tell you every transaction from the day we started in business in 1918 until today, the exact number of bottles in each transaction, if you can get the books from the Government.

Q. And this gentleman who is sitting to your right there—did you say from the Government? You were giving such a speech, Mr. Reuter, I couldn't follow you.

A. What?

Q. You were giving such a long speech I couldn't follow you.

The Master: Put another question.

Mr. Garipey: Q. Who is this gentleman to your left?

A. Mr. McIntosh.

Q. He is your attorney?

A. Yes.

Q. What other than the driver's remarks to you when he brings in a truck, telling you whether that comes from a junk yard or a dump, do you have?

A. The driver doesn't make any remarks.

Q. Who makes the remarks as to where they come from?

A. It is all written down in black and white on paper.

1673 Q. By whom?

A. By the driver, the man who picks them up.

Q. That is what I am saying. You get that from the driver?

A. Yes.

Q. You trust the driver to give you an accurate report?

A. We check up, to see that he is right.

Q. But as to the source where he got the bottles?

A. If he did not give credit to the people he picked them up from, they would very quickly tell us about it.

Q. Do you give any credit to the junk yard when you pick them up at a junk yard?

A. Certainly.

Q. How much credit do you give them?

A. We allow them seven cents a dozen.

Q. And how much do you pay the dump when you pick them up from the dump?

A. We pay them a little more.

Q. And is that the city? If you went to a city dump and got some, you would pay the city a little more than that?

A. We don't pay the city. We pay the dump keeper.

Q. You pay the dump keeper?

A. Yes.

Q. How much do you pay him?

A. Nine cents.

Q. Nine cents for how many?

A. Per dozen.

1674 Q. Per dozen?

A. It is all dozen prices. The prices vary in different places, according to how important they are to us.

Mr. Gariepy: That is all, Mr. Reuter.

Redirect Examination by Mr. Schaefer.

Q. Does any bottle ever leave the Bottle Exchange without having been first inspected for cleanliness, Mr. Reuter?

A. No.

Mr. Schaefer: That is all.

Recross Examination by Mr. Gariepy.

Q. Mr. Reuter, what does that inspection consist of?

A. The bottles before they go through the washer, they are all handled, and if they are too dirty, they are thrown aside for the soaker. After they come out of the other end of the washer, after being washed, every bottle is examined by the attendant at that end of the machine.

Q. That is, visibly?

A. Sure. We cannot make a chemical test. And 1675 if he overlooks anything, when they get up to the sorter, if there is anything there that is not clean, it is set aside, and if something gets by the sorter, it goes up to the packer, and if he finds anything out of the way, he sets it aside. So we have a pretty good check. It is pretty hard for an unclean bottle to get out, and if an unclean bottle should get out, it is washed and inspected in the dairy, and sterilized. The bottle is examined before it is filled, and after it is filled. They are mighty careful about dirt, because dirt in a bottle means death to the dairy.

Mr. Gariepy: That is all.

Further Redirect Examination by Mr. Schaefer.

Q. Mr. Reuter, were you subpoenaed to appear here today?

A. Yes, sir, I was.

Q. Did you ever see me, to your knowledge, before today?

A. Never did.

Q. Or Mr. Horan, who is this gentleman here?

A. I never seen any of them in the room, except Mr. McIntosh.

Mr. Schaefer: That is all.

The Master: That is all.

(Witness excused.)

1676 DELMAR M. RUDIG, called as a witness on behalf of the defendants, being first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. What is your name?

A. Delmar M. Rudig.

Q. Where do you live, Mr. Rudig?

A. 10117 South Rhodes Avenue.

Q. In what city?

A. City of Chicago.

Q. By whom are you employed?

A. The Board of Health of the City of Chicago.

Q. In what capacity are you employed by the Board of Health?

A. Senior bacteriologist.

Q. Is that a Civil Service position?

A. Yes, sir.

Q. Are you a Civil Service employee?

A. That is right.

Q. How long have you been employed by the Board of Health of the City of Chicago?

A. Approximately seven years.

Q. Have you been a senior bacteriologist all of that time?

A. Approximately six years of that time.

Q. Where did you receive your college education, Mr. Rudig?

1677 A. I attended Drake University, at Des Moines, Iowa.

Q. When did you attend Drake University?

A. 1924 to 1926.

Q. Did you attend any other educational institution?

A. The University of Iowa.

Q. And when was that?

A. That was along about 1928, 1929, 1930, two years there, from 1928 to 1930.

Q. And during the period you have just described, what were you studying?

A. I was taking a pre-med course during the time I was at the University of Drake, and one year pre-med at the University of Iowa.

Q. Then did you receive any instruction at any medical school?

A. Two years.

Q. Where?

A. University of Iowa.

Q. When was that?

A. That was in 1930 and 1932.

Q. What are your duties as senior bacteriologist for the Board of Health?

A. We have quite a variety of duties there, as a senior. We deal mainly with contagious disease, that is, more specifically with the diagnosing of diphtheria, scarlet fever, typhoid, dysentery specimens. At times I have been at the sereological department, which has to do with the 1678 running of Kahns and Wassermans for the diagnosis of syphillis, and occasionally we have special problematical work that might come up and be assigned to us.

Q. Have you had occasion as a bacteriologist for the Board of Health of the City of Chicago to perform any experiments designed to show the relative efficiency of paraffin as a bactericidal agent when applied in melted form to dry paper, as contrasted with its efficiency when applied in melted form to moist paper?

A. Yes, I have experimented with that.

Q. Will you describe those experiments, please? When were they first conducted?

A. Sometime during the period from March to April or May.

Q. Of what year?

A. I believe that was this year, 1939.

Q. Will you describe those experiments, please?

A. Yes. The problem as presented to me was more or less a verbal summary of bringing out the effect of wet paper and dry paper efficiency, as to how it worked in killing organisms.

The Master: I didn't get that.

1679 The Witness: This particular problem was as to the difference between wet paper and dry paper and its effect when put in the paraffin bath, how it would effect the killing of organisms.

So we devised a setup something like this: We took some paper carton plaques about the ordinary consistency of milk cartons. These were cut into one-inch squares. We cut a good many of those. They were sterilized in an auto-

clave, which is an instrument for sterilizing at high pressure, 15 pounds pressure, so these plaques were put through this autoclave and sterilized in Petri dishes, and then after that we set up a set of Petri dishes—they are round dishes, about ten centimeters round, with a lid, and a bottom on there of glass.

In those we put some blotters, cut them so they would fit into these Petri dishes, a set of those, and those were sterilized, and after they were sterilized we poured sterile distilled water into these blotters to make them moist, not so that the water was running all over the place, but just to saturate them, so the blotters were moist.

In another set of Petri dishes we put in some plaques and put those in the drying oven. We put them in 1680 drying oven over night, I believe it was, about 24

hours, and exposed the white plaques in these Petri dishes at one time for five hours and at another time for 24 hours. In other words, the main object was to have a set of sterile plaques that were wet, or damp, at least, in moisture, as distinguished from another set of plaques and another set of Petri dishes that were dry.

Then we took a series of these two and ran them through a paraffin bath.

First, we made a culture of organisms. Twenty-four hours in a broth culture. Then this acted as our incubator material. Large organisms grown in the broth. As I recall, we used a four millimeter loop to place the organisms on to these little square plaques.

Mr. Schaefer: Q. What was the purpose of placing the organisms on the plaques in that manner?

A. I used a four millimeter loop, so we could put a uniform number of organisms on each plaque. We wanted to have each set of plaques inoculated with the same number of organisms, approximately.

Q. What did you then do?

A. When these plaques were inoculated, we put 1681 them in a paraffin bath. The paraffin bath was at the temperature and maintained at the temperature of approximately 176 degrees Fahrenheit for 20 seconds. Then we removed those quickly from the paraffin bath and placed them in a sterile Petri dish, which contained a glass bead.

Q. What is a glass bead?

A. Just a round piece of glass.

Q. What was the purpose of using the Petri dish with a glass bead on it?

A. We laid the one-inch plaque up against the bead, so the drying effect would not stick to the bottom of the Petri dish or break the paraffin.

Q. Then what did you do?

A. After those had been cooled, we placed some of these that had been treated this way into this broth. We put the whole plaque right in there. With the other series of tubes we used sterile forceps to pick up these plaques, and we crinkled those, that is, bent the plaques to break the paraffin, and those were put into another series of tubes for incubation.

Q. Then what did you do?

A. Those were carried out with a great number of plaques, to get a general picture, to show the comparative effect. Then these were incubated for 72 hours.

We looked at them at 24 hours, and 48 hours and at 72 hours, for different readings, to see whether or not the broth was cloudy and contained growth, and in those that contained growth we confirmed this by taking a loopful of these organisms and placing them on another sterile media, and put them on the surface of an agar plate, to see whether or not they were the same organisms with which we started.

The Master: Did you find any trespassers?

The Witness: Very seldom.

Mr. Schaefer: Q. What was the result of that experiment, with respect to the relative efficiency of the paraffin as a bactericidal agent, when applied to the moist plaques, as compared with its efficiency when applied to the dry plaques?

A. It showed quite a difference in them, in that the plaques that were moistened before use showed a greater killing of organisms than those that were used dry.

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 20 for identification and this one Defendants' Exhibit 21 for identification.

(The documents referred to were marked by the 1683 reporter Defendants' Exhibits 20 and 21, respectively, for identification.)

Mr. Schaefer: Q. Will you look at Defendants' Exhibit 20 for identification and tell me what that is, Mr. Rudig?

A. This is a report of the results of the work that

showed the comparative effect of the wet and dry plaques and run through a paraffin bath.

The Master: What is that?

The Witness: I say this is a report showing the results of the comparative effect when using the wet and dry plaques, after being run through a paraffin bath, and under condition of being inoculated for organisms.

Mr. Schaefer: Q. And that exhibits shows the type of organisms used in the various tests which you run, is that correct?

A. That is right.

Q. What is the meaning of the entries following the word "Plaque" in the first line of Defendants' Exhibit 20?

A. The word "Plaque" there means that it was one of those pieces of carton of which we cut off a one-inch square.

1684 Q. What did you do with it?

A. Those and several like it we inoculated with the organisms as indicated on the chart and run through the paraffin bath and at the temperatures mentioned, and for the length of time mentioned, and inoculated in broth as mentioned.

Q. As a matter of fact, the entries appearing after the word "Plaque" all indicate no growth of bacteria?

A. Yes. That was run as a control there. That is, these first three were run as controls, to show that our plaques were sterile, to begin with.

Q. And the second entry of "Organisms," the entries following that mean what?

A. Those organisms show that—there we took the organisms directly and put them on the plaque, without subjecting it to the paraffin bath or any other treatment, to show that the organisms would grow in the medium which we used.

Q. And what was done with respect to the third entry, the paraffin?

A. The paraffin there, we took the plaques, as they were, sterile, untreated in any other manner, and just put these plaques in the paraffin bath alone, with no organisms on them, and planted those in the broth. That would indicate that the paraffin was free of organisms.

1685 Q. The first tests on Exhibit 20 were control tests?

A. Yes.

Q. On that exhibit how do you indicate plaques in showing a growth of test organisms?

A. By the plus sign.

Q. And how do you indicate no growth of organisms?

A. By a negative sign.

Q. How do you indicate a plaque which shows a growth of organisms, but which are not the test organisms?

A. Indicate that by a plus sign in parentheses.

Q. Now, I show you Defendants' Exhibit 21 for identification. Can you tell me what that is?

A. This is another experiment that was conducted, following the first one. The same technique was used throughout, with the exception of using a broth culture organism to inoculate; we used a growth which grew on an agar slant.

Q. And on Defendants' Exhibit 21 you indicate plaques showing growth by the same symbols which you used on Defendants' Exhibit 20, is that correct?

A. That is correct.

Mr. Schaefer: Cross-examine.

1686 *Cross-Examination by Mr. Gariepy.*

Q. Mr. Rudig, what quality of paraffin did you use to make the test, as to the bactericidal effect of paraffin on damp paper and dry paper?

A. We used a paraffin that had a melting point of 125 to 127 degrees Fahrenheit.

Q. Did you perform any test on this plaque, this piece of paper, first with regard to its sterility or sanitary qualities?

A. Yes. On each test there the record shows we run a whole series of plaques showing its sterility.

Q. What are these plaques that you refer to? What relation have they to paper milk bottles?

A. They were cut from cartons.

Q. What cartons?

A. From milk cartons.

Q. Name the cartons and describe them.

A. I believe the cartons we used were Dean's. That is, the name on the carton was Dean. I don't know who made that. The other was the Bowman. I think in this particular experiment we used the Dean plaques.

Q. Where did you get them?

A. They were submitted to the laboratory.

Q. By whom?

A. I don't know.

Q. You don't know?

1687 A. In other words, in the laboratory, working there, this material is all brought in to us, and we use it there as it is presented to us.

Q. Had they been paraffined before or not?

A. In some cases they were paraffined and in some cases they were not. In this particular experiment I believe we used the unparaffined plaques, and those that were paraffined, the paraffin was extracted by the ether method, petroleum ether, and then sterilized.

Q. And how did you sterilize them after you took the paraffin off of them?

A. They were sterilized in a 15-pound pressure autoclave.

Q. Did you disintegrate the material?

A. Apparently not.

Q. No. Answer the question. Did you disintegrate the material?

A. What do you mean by disintegrate?

Q. Don't you know what disintegration is as a bacteriologist?

A. It is a term for breaking down.

Q. Did you break it down?

A. Not to my knowledge, no.

Q. Do you know what that disintegration test is?

1688 A. I do not know of any specific disintegration test.

Q. Did you ever, as a bacteriologist for the Board of Health, for the last six and a half years that you have been a senior bacteriologist, perform any disintegration on paper board?

A. I have not.

Q. Have you performed any disintegration tests on any paper containers used in the city for liquids or food?

A. No.

The Master: Q. Did you sterilize the unparaffined plaques as well as the paraffined plaques?

A. Yes. Well, what I mean by the paraffined plaques, those we used were pre-paraffined before we received them, but that was extracted.

Q. What I wanted to get at was the sterilization. You did that to both?

A. Yes. Everything was sterilized before we started any experiments, and then we ran control tests all the way through.

Mr. Gariepy: Q. As I take it from your direct examination, you say that your tests on dry paper or these plaques of dry paper, paraffined, had a decided bactericidal 1689 effect, is that right?

A. Yes.

Q. When milk cartons are paraffined, they are dry, are they not?

A. Well, I suppose they are—

Q. Are they dry or wet, do you know?

A. I don't know the moisture content of those, no.

Q. Then your test on wet containers would not mean anything with regard to the practical operation of the Pure-Pak container or the dry container when it is filled with milk, would it?

A. This would probably show indirect evidence, as far as wet plaques and dry plaques are concerned, yes.

Q. But if the paper containers are dry when they are inserted in the machine and paraffined, how are you going to compare that? By just guessing?

A. There is always a change in the atmospheric moisture that might affect it.

Q. Is that the only thing that might affect it in a milk plant?

A. There is a good deal of moisture usually around.

Q. Did you ever visit the Chemung plant of Fieldcrest Dairies?

A. No.

1690 The Master: He has testified to the bactericidal effect on dry plaques.

The Witness: In other words, this test is just to show the relationship of the dry and wet plaques.

Mr. Gariepy: Q. Does dry air kill non-spore forming bacteria?

A. No, dry air is not a very good killer of spore formers.

Q. Not spore forming, I said. I didn't say spore forming.

A. Oh, I thought you had.

Mr. Gariepy: Read my question.

(Mr. Gariepy's question was read by the reporter as above recorded.)

The Witness: A. Yes.

Mr. Gariepy: Q. Yes or no?

A. Yes.

Q. And how much exposure to dry air would kill them?

A. I wouldn't know exactly.

Q. Did you perform any tests to ascertain that?

A. No.

Q. At whose suggestion did you perform these tests in March, April and May, 1939, which you say you did?

A. The chief of the laboratory, Dr. White.

Q. Did you perform any tests at all with regard to 1691 the paper board and the paper containers of Dean or Bowman, as you call it, at any time previous to March, April and May, 1939?

A. No.

Q. Then you have no idea with regard to how long a period of time the non-spore forming bacteria will live on dry paper, do you, 24 hours, 48 hours or 72 hours?

A. Only what I have read, that some organisms that might grow on dry paper might die off rapidly and other types may not die off so rapidly. It depends on the type of organism and the conditions to which they are exposed.

Q. Have you made any experiments to determine the bactericidal effect of the drying of paper on the bacteria, particularly the spore forming bacteria?

A. No, I have not.

Q. Have any been made in the bacteriology department of the Board of Health at any time subsequent to February 6, 1939?

A. There may have been some made. Not to my knowledge.

Q. You don't know about it?

A. That is right.

The Master: Q. As I recall it now, your testimony is that the paraffin had a greater bactericidal effect on 1692 the dry plaque than on a wet one.

A. Just the opposite. It had a greater killing power when the plaques were wet.

Mr. Gariepy: Q. What effect did it have on the dry? As I understand it here, the moistened plaques shows great killing and the wet plaques showed killing.

Mr. Schaefer: They are the same thing.

Mr. Gariepy: No, they are not.

The Master: Yes, it is the same thing.

Mr. Gariepy: I mean the dry plaques.

The Witness: A. I think the results on the table there show a definite relationship. If I remember right, I think there were about twenty out of fifty that showed growth on the wet plaques and about 46 out of the same number, 50, that showed a growth with the dry plaques.

Q. A little better than double, you would say?

A. Approximately.

Q. Do you know with regard to the actual conditions of the plaques concerning the number of organisms on there?

A. No. If I get your question, I suppose you mean the number of organisms on cartons used anywhere?

Q. Yes.

A. No, I don't know.

Q. This test that you employed here required a 1693 heavy dosage of organisms on them, didn't it?

A. Yes, fairly heavy dosage there.

Q. Did you ever hear of paper milk containers having the same quality of organisms as you applied in your dose in your test?

A. They would be subject to the organisms, because they would be the usual kind you would find around people.

Q. Did you ever find organisms of the same quality on these containers found in the market?

A. No. I never went into that.

Q. You don't know anything about normal conditions?

A. No.

Q. Do you know what these plaques are made out of, with regard to the quality of the paper?

A. I don't know the constituents of the plaques.

Q. You don't know?

A. They are the regular milk containers, whatever they might be, but it is out of my line to go into the study of plaques.

Q. You had nothing to do with ascertaining the quality of the paper board that these plaques came from?

A. No.

Q. Whether they were made out of second-grade stock or made out of virgin spruce pulp?

1694 A. No.

Q. You don't know anything about that?

A. No.

Q. Can you pick out from Exhibits 20 and 21 the plaques and the tables on which the Dean containers, as

you called it, were used, and separate those from the ones you called the Bowman containers that were used?

A. It does not show on this particular report, but on the first page of this report it describes the technique. I believe they are referred to on that.

Mr. Gariepy: Mr. Schaefer, have you the first page that he is referring to?

Mr. Schaefer: Is that what you mean, Mr. Rudig (handing document to the witness)?

The Witness: Dean's plaques.

Mr. Gariepy: Q. How many of those on Exhibits 20 and 21? You have just said here, under Dean's plaques that you referred to, that they were sterilized in an autoclave for one hour at 15 pounds pressure on two successive days. How many of those?

A. All of them.

Q. And you have got on this table plus or minus signs. What does that mean with regard to the number of bacteria?

1695 A. It doesn't have anything to do with the number.

Q. You didn't count them?

A. This test was put in broth, you see. You could not tell the number.

Q. You could not tell the number?

A. In other words, this means one organism present or two or three or fifty, it would show the same result.

Q. And if there were one, two or fifty, or a million, the plus would show that?

A. Yes.

Q. And if there was none, it would be zero?

A. Yes.

Q. But no accurate count was made?

A. Not in this test. Let us see about this. On 17, no, but on 16 there were some counts made to show the number of organisms, approximately; this particular one.

Q. Exhibits 20 and 21, which are the ones I asked you about concerning the effect of plus and minus?

A. Yes.

Mr. Gariepy: That is all, Mr. Rudig.

The Master: Is that all, Mr. Schaefer?

Mr. Schaefer: Yes. I offer in evidence Defendants' Exhibits 20 and 21.

Mr. Gariepy: Master, I object. There is nothing show-

ing that Exhibits 20 and 21 apply to the Pure-Pak 1696 container of the plaintiff here, except as this witness said he could not point them out and there is nothing in here showing the amount of bacteria. It is just plus and minus. It might be one or a million. It is immaterial. I don't see anything to it.

The Master: Well, I will let them go in. Objection overruled.

(Said documents, showing experiments Nos. 16 and 17, as conducted by the witness, so offered and received in evidence were marked DEFENDANTS' EXHIBITS 20 and 21, respectively, and are attached hereto and made a part hereof.)

The Master: Q. By the way, did you encounter any difference, Mr. Witness, between the two types of plaques, Dean's and Bowman's, in the results that you obtained?

A. No. For experimental purposes all of these paper plaques gave about similar results. Those that were extracted with ether or not extracted with ether, as far as paraffin is concerned, it made no difference.

Q. It made no difference whether you had the Dean paper or the Bowman paper?

1697 A. No.

Mr. Garipey: Q. Mr. Rudig, since the Master asked you that question, how do you account for any growth of this bacteria on these plaques?

A. The only answer is that they were not killed when they were exposed in the paraffin bath twenty seconds at 170 degrees Fahrenheit.

Q. But if I told you that these plaques were made out of paper board that was sterile and free from bacteria, how would you account for it?

A. If they were sterile, they would not grow or come through.

Q. You inoculated them, didn't you?

A. Some of them, but we ran some controlled ones that were not inoculated.

Q. Do you mean to tell me you took these plaques and performed these tests without doing any inoculation on them at all, and just made the count after immersion in water?

A. We made the count to prove they were sterile after the test.

Q. In the beginning?

A. After they were autoclaved.

Q. What do you mean by that?

A. Subjected to 15 pounds pressure, in closed vessels, under steam heat.

Q. Do you know whether these parcels of board had any greater pressure on them than this 15 pounds of heat that you refer to?

A. No, that is the only time.

Q. If I told you they were under rollers at 250 degrees Fahrenheit, with pressure on them, steam rollers, would you still say there were bacteria on this paper board?

Mr. Schaefer: I object to that. He is not a bacteriologist on paper.

Mr. Gariepy: He is too.

The Master: I think I will sustain the objection. That is argumentative. He has merely given you the results of the tests that he conducted. You can argue about that later on.

Mr. Gariepy: Q. You don't know anything about the making of these plaques or these parts of paper board that you made this from, do you?

A. No. I am not a paper man and I did not go into that.

Q. Did you have any occasion to check into the making of this board?

A. No, I did not.

Q. Or any other type of paper container?

1699 A. No. There was no necessity for it, with this type of experiment, at least.

Q. Why?

A. My problem is one to express whether or not this paper, the same in both instances, whether wet or dry, would show a certain result. That was all my problem was. The paper was the same in both cases. We used the same paper. All those plaques were selected at random. The paper was the same all the way through. It didn't matter whether it was a wet one or a dry one. The problem was what would be the effect on the wet or the dry paper. It was all the same material to begin with.

Q. But you inoculated them?

A. Yes, some of them; and the controls, as I mentioned in there and showed in the report, were negative and showed sterility, or the death of bacteria.

Q. How do you account for the death of the bacteria on the dry and wet?

A. I suppose the moisture there has a greater sterilizing effect than the dry. That would be the common assumption, I believe, from looking over the report.

Q. Do bacteria grow where it is moist or where it is dry?

A. That depends on conditions. Ordinarily organisms have to have moisture.

1700 Q. Is it not a fact that bacteria will not grow unless they have something to feed on in the way of moisture?

A. Yes, they have to have food and moisture, yes.

Q. And where there is no moisture and no food, how are they going to exist?

A. They do get moisture to a certain extent, to exist.

Q. That is from the air?

A. To a certain extent, but it might be from the medium.

Q. You refer to the plaque?

A. No.

Q. Just taking a plain plaque, where are they going to exist, if the plaque is devoid of moisture?

A. It is not entirely devoid of moisture. It has been in the oven. That took a certain amount of moisture out of it. Whether it is completely dehydrated, I do not know.

Q. But you did not perform any test to ascertain that?

A. No. But you could see readily here that paper board subjected to dry heat would become dryer than one sitting in a moist container. I think you can assume that.

Q. This test that you performed, then, was not designed as a test in order to show the bacteria on the original board, was it?

1701 A. No. In other words, the inoculation there did not make a great deal of difference. That was not the problem.

Q. It was only performed for the purpose of showing the relative killing effect of the bacteria in the paraffin?

A. Yes.

Q. But the quality of the board was not concerned?

A. No.

Q. This was an artificial test you set up in order to ascertain the effect of this paraffin?

A. That is right.

Q. You don't know anything about the paper board being actually used in paper bottles being subjected to the same type of test and inoculation, do you?

A. I don't know to what test they would be subjected in the plant.

Mr. Gariepy: That is all.

Mr. Schaefer: That is all.

(Witness excused.)

Mr. Schaefer: Mr. Reporter, will you mark this Defendants' Exhibit 22 for identification?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 22 for identification.)

1702 Mr. Schaefer: It is stipulated between the plaintiff and the defendants in this case that the letter which has been marked Defendants' Exhibit 22 is a true copy of a letter sent by Mr. S. E. Dean, Sr., president of the Dean Milk Company, to Dr. Herman N. Bundesen, on or about January 13, 1936, and received by Dr. Bundesen.

Is that correct?

Mr. Gariepy: That is right.

Mr. Schaefer: I offer Defendants' Exhibit 22 in evidence.

Mr. Gariepy: I can't quite see the purpose of this, Master, when we have already stipulated that application was made on that date by the Dean Milk Company, that subsequent thereto the Fieldcrest Dairies made application, adopting this application that had heretofore been made, and that subsequent thereto numerous correspondence passed. I typed all this correspondence, about 56 letters, and gave it to Mr. Schaefer.

The Master: This does not hurt you.

Mr. Gariepy: But I don't want any part of it in. Put it all in.

The Master: I will let it go in. It may be received.

1703 (Said document, being a photostatic copy of letter dated January 13, 1936, to Dr. Herman N. Bundesen, from the Dean Milk Company, so offered and received in evidence, was marked DEFENDANTS' EXHIBIT 22 and is attached hereto and made a part hereof.)

The Master: Anything more, Mr. Schaefer?

Mr. Schaefer: Yes, sir, one more exhibit.

Mr. Reporter, will you mark this Defendants' Exhibit No. 23 for identification?

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 23 for identification.)

Mr. Schaefer: It is stipulated between the plaintiff and the defendants that the document marked Defendants' Ex-

hibit 23 for identification is a true copy of a letter written by Mr. George D. Scott, sales manager of the Pure-Pak division of the Ex-Cell-O Corporation, and sent to and received by Dr. Herman N. Bundesen, president of the Board of Health of the City of Chicago on or about August 2, 1938.

Is that correct?

Mr. Gariepy: Let me see it, please.

Yes, this is a letter that George Scott sent to Dr. Herman N. Bundesen on August 2, 1938.

Mr. Schaefer: I offer in evidence Defendants' Exhibit 23.

The Master: It may be received.

(Said document, being a letter dated August 2, 1938, to Dr. Herman N. Bundesen, from sales manager, Pure-Pak division, Ex-Cell-O Corporation, so offered and received in evidence, was marked DEFENDANTS' EXHIBIT 23, and is attached hereto and made a part hereof.)

Mr. Schaefer: That is all today, sir.

The Master: Do you rest now?

Mr. Schaefer: No. I would like to go ahead tomorrow.

The Master: Will you be able to start at 9:30?

Mr. Schaefer: Yes, I think so.

The Master: All right, 9:30.

Whereupon an adjournment was taken in the above entitled cause to 9:30 o'clock a. m. of the following day, Thursday, October 12, 1939.

1705

• • (Caption—) • •

Thursday, October 12, 1939,
9:30 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

1706 Mr. Schaefer: It is stipulated between the parties hereto, by their attorneys, that in making the bacterial counts reported in Plaintiff's Exhibit 59, Dr. Martin J. Prucha used a new nutrient agar, described in the seventh edition of Standard Methods for the Examination of Dairy Products, published by the American Public Health Associ-

ation in the summer of 1939. He used this same type of agar in performing the experiment recorded in Plaintiff's Exhibit 51. In general, the new nutrient agar gives higher counts than the old standard nutrient agar. It is known that at times this new nutrient agar gives twice as large and even larger counts. If you take all of the counts reported in Plaintiff's Exhibit 59 and, roughly, divide them by two, you will have approximately what the old standard agar would have given.

Is that satisfactory?

Mr. Garipey: That is o. k.

Mr. Schaefer: Will you take the stand, Doctor?

The Master: Dr. Arnold has been sworn, I believe.

Dr. Arnold: Yes, sir.

1707 LLOYD ARNOLD called as a witness on behalf of the defendants, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Schaefer.

Q. State your name, please.

A. Lloyd Arnold.

Q. And where do you live?

A. 5844 Stony Island Avenue.

Q. What educational institutions did you attend, Doctor?

A. I received a Bachelor of Arts degree and a Master of Arts degree from the Texas Christian University at Fort Worth, Texas. The latter degree I received in 1908.

Q. Did you attend any other educational institutions?

A. In 1908 I went to Tulane University Medical School in New Orleans. I was there two years as a medical student. Then I went to the University of London and Oxford University.

Q. Those are both in England?

A. Those are both in England. I was there a year. Then I went to Germany for three years.

Q. What school did you attend there?

1708 A. I was in Hamburg, Germany at the Institute of Tropical Medicine, and I was in the University of Goettingen and the University of Munich and the University of Tuebingen.

Q. How long were you there?

A. I spent three years in Germany. I left Germany in 1914.

Q. Proceed.

A. I returned to this country, and I was at Vanderbilt University in Nashville, Tennessee, teaching and finishing up my medical course. I finished there in 1919.

Q. What degree did you receive there?

A. The M. D. degree.

Q. Doctor of Medicine?

A. Yes, sir.

Mr. Garipey: What year was that, 1919?

The Witness: Yes, sir.

Mr. Garipey: M. D.?

The Witness: Yes, sir.

I then became superintendent of the Nashville City Hospital and pathologist at the Nashville City Hospital and instructor of internal medicine at Vanderbilt University.

Mr. Schaefer: Q. How long did you continue there?

A. I was there for one year. I then came to Chicago, as professor of bacteriology, pathology and public health 1709 at the Loyola Medical School, which position I held until 1925.

Q. What did you teach at Loyola University Medical School, Doctor?

A. I taught bacteriology, pathology and laboratory methods of clinical diagnosis. As head of the department at Loyola I was in charge of the laboratories of the affiliated Catholic Hospitals, including Mercy Hospital, St. Bernard's Hospital, St. Anne's, St. Elizabeth, and Misericordia.

Q. Did you also teach courses in public health?

A. Yes, sir, I taught courses in public health also.

Q. For how long did you remain in that position at Loyola University?

A. I remained in that position until 1925.

Q. Then what did you do?

A. During my summer vacations while I was at Loyola I attended Columbia University, the Lamar School of Public Health at Columbia, and worked in sanitary sciences under Professor Earl Phelps.

Q. How many summers was that, Doctor?

A. Three summers.

Q. Then what did you do?

A. Then I accepted a position at the University of Illinois as associate professor in bacteriology and public

1710 health. A year later I became full professor, in charge of the department of bacteriology and public health at the University of Illinois College of Medicine.

Mr. Gariepy: What year was that?

The Witness: 1926. In 1927 I became full professor.

Mr. Schaefer: Q. What position do you now hold?

A. I hold the same position.

Q. At the University of Illinois?

A. At the University of Illinois College of Medicine.

Q. What are your duties there?

A. My duties there are to teach bacteriology to medical and dental students and public health to medical students. I also have about thirty-five graduate students who are taking higher degrees in bacteriology and public health.

Q. Are you a member of any professional and scientific societies?

A. Yes, sir, I belong to about fifteen.

Q. Can you enumerate some of them?

A. The American Medical Association, Chicago Medical Society, The Institute of Medicine of Chicago, the American Society of Bacteriologists, the American Society of Immunologists, the American Public Health Association, the American Association of Food Technologists, and several others.

Q. Have you ever had any connection with the State Department of Public Health of the State of Illinois?

A. Yes, sir. From about 1927 to 1928 I was bacteriologist and consultant to the State Department of Public Health. I might say that my contract with the Board of Trustees of the University of Illinois is for 80 per cent of my time. Twenty per cent of my time is my own to do with as I please, as is customary for such professors in medical school.

Q. What has been the nature of your work with the State Department of Public Health, Doctor?

A. I had two duties with the State Department of Public Health. I organized and started a Chicago branch laboratory, serving the northern third of the state, in 1927. I was in charge of that laboratory. My other duties were as consultant to the director in problems arising of a public health nature in the state.

Q. Have you had any occasion to assist in the formulation of rules and regulations for that department?

A. For the last twelve years I have been a member of a committee appointed each year by the director of the State

Department of Public Health to formulate rules and regulations, which are, in fact, the sanitary code in regard 1712 to the control of communicable diseases in the State of Illinois.

Q. Have you had occasion to engage in any independent research in bacteriology, in addition to your work at the University that you have mentioned?

A. Yes, I have done considerable investigation work in the field of bacteriology.

Q. To what matters did that work pertain, Doctor?

A. It pertained to most all of the fields of bacteriology. The identification of bacteria, investigation of new diseases, whether bacteria or virus, the nature of new diseases that might occur, as well as problems in public health dealing with administration, vital statistics, and so forth.

Q. Are you a member of the Board of Health of the City of Chicago?

A. Yes, sir. I became a member of the Board of Health of the City of Chicago in the first part of December, 1938.

Q. In addition to serving as a member of the Board of Health of the City of Chicago, have you performed any other duties for the Board of Health?

A. Yes, sir. The Board asked me to assume responsibility for the dairy division of the Chicago Board of Health at the time leave of absence was granted to Mr. 1713 Krueger and Mr. Guerin, which was about the time I became a member of the Board.

Q. What has been the nature of the duties during that period of the leave of absence of those gentlemen, Doctor?

A. My duty was as the administrative and enforcement officer, in charge of the dairy division, which includes the milk shed, receiving stations, pasteurization plants and the distribution of milk in Chicago.

Q. That work began, you say, in December of 1938?

A. Yes, sir, early in December, 1938.

Q. Do you receive any compensation as a member of the Board of Health?

A. No, sir.

Q. Do you receive any compensation from the city of Chicago?

A. Yes, sir.

Q. For the work which you have done in connection with the dairy division?

A. Yes, sir.

Q. Of the Board of Health?

A. Yes, sir.

Q. And at what rate do you receive compensation?

A. Five hundred dollars a month.

The Master: Q. How does your work as a professor of bacteriology at the University of Illinois differ from that of Dr. Prucha?

A. Dr. Prucha is in the dairy division, Master. He 1714 deals with the bacteria associated with milk and milk products in the Department of Agriculture. My duties are in the College of Medicine and the College of Dentistry, dealing with disease producing bacteria, methods of diagnosis, methods of treatment and methods of prevention.

Q. I see.

Mr. Schaefer: Q. Will you enumerate some of the duties which you have performed, Doctor, as consultant to the Board of Health, in charge of the dairy division?

A. All violations reported by the division, by the inspectors, or determined by the inspectors in their routine work, were reported to me. I usually held conferences with the individuals whose permits were issued by the Board and who were in violation, to ascertain the reasons for it and to get compliance with our regulations.

Every afternoon, daily, I was engaged in such activities. I met with the inspectors rather frequently, in groups, to discuss their problems and instruct them in public health methods of the control of milk and milk products. Then new problems coming up in the health department concerning the dairy division were submitted to me for recommendations. There was quite a variety of those.

1715—Q. Have you done any work with respect to the ordinances of the city and the regulations of the Board of Health, with respect to milk and milk products?

A. Yes, sir.

Q. What has been the nature of that work?

A. In 1940, it will be necessary for the City of Chicago to revise their ordinance for milk. Inasmuch as our time is up with the United States Public Health Service, we will have to revise it. I think every four years we have to bring it up to date, and I have given considerable time in the last few months to revisions of the new ordinance and various parts of the ordinance which will require revision and probably some fundamental changes in our ordinance structure.

The Master: Q. What do you mean, your time is up?

Is there any obligation in connection with the United States Public Health Service?

A. No, sir. The only obligation, Master, is that there is considerable protection to a municipality that operates under the United States Public Health Service ordinance and code. In case there is an epidemic or in case there is any difficulty, you have the United States Public Health Service model code to go on, and it puts you in a 1716 little stronger position than if you are independent of the federal code.

Q. What do you mean by stronger position? As to what?

A. A stronger position, that you are doing the right thing in the right way.

Q. In other words, you follow them as a good example, is that it?

A. Yes.

Q. There is no obligation to it?

A. No obligation at all. We sometimes exceed their recommendations, that is, we make them more stringent in some respects, and sometimes we do not make them as stringent.

Q. And why do you say there is a time limit of four years?

A. Because the United States Public Health Service regards the control of milk as an ever-changing condition. As methods improve, as knowledge increases, they want to change the code to conform to the later information available, and they require, if you are going to operate under their code, to remodel it at certain definite periods, and I think it is every four years.

Q. Do they require or do they merely advise?

A. They merely advise. In other words, we could not have a United States Public Health Service rating in 1717 Chicago if we did not operate under the code.

Q. What difference does it make to you whether you have a United States Public Health Service rating or not?

A. The difference is really a competitive difference, Master. The cities like to show that they have a good sanitary milk supply.

Q. Just a matter of internal satisfaction?

A. Yes, sir. And if the United States Public Health Service says you are 98 per cent perfect in your milk supply, that is better than not having anything. That is just the sum and substance of it.

The Master: Go ahead, Mr. Schaefer.

Mr. Schaefer: Q. The matter of whether or not the milk ordinance of the city of Chicago will be revised in 1940 and what form that revision will take, if a revision is made, is a matter of determination by the city council of the city of Chicago, is it not, Doctor?

A. Yes, sir.

Q. Are you familiar with the operation of paper mills which manufacture paper board for use in milk containers, Doctor?

A. Yes, sir.

Q. What, in your opinion, are some of the important public health problems in connection with the sanitation of paper mills manufacturing paper for use in milk containers?

A. I should consider the problem of the raw material, the problem of the water supply and the physical equipment of the mill, the manual handling of the product and the storage and wrapping or the preservation of the final product, as the most important problems.

Q. You mentioned the raw material, Doctor. From the point of view of the protection of the public health, what if anything is the sanitary significance of the type of raw material used in paper mills manufacturing paper for use in milk containers?

A. I think the raw materials should be obtained from wood or logs which is virgin stock. The classification of that, whether it is spruce or pine, is immaterial from a public health standpoint, although spruce is used in paper containers because of the stability or rigidity of the fibres.

The logs should be seasoned, healthy logs, that is, healthy in that they should not have areas of injury on the surface, mould or a growth which causes a depression in the log, and this mould or depression is filled with what we call pitch. It is a resinous material secreted in the tree to prevent invasion by blight or mould from the outside.

These pitch pockets contain large numbers of bacteria, many moulds and yeast, and the pitch pockets should be cleaned out by a machine that reams out the pitch pockets.

I think the logs should be stored, or the wood pile should not rest on the ground; it should rest on a cinder bed. If it rests on the ground, rain or melted snow wets the logs, dripping down to the bottom, and it gets the ground wet. The sun does not get to it. It stays moist, and sometimes the

logs at the bottom have whiskers of mould, and it is not proper, from a public health standpoint, to use such grossly contaminated logs.

If there is a cinder bed at the bottom, of about two feet in thickness, that will drain off the water. It is porous. It does not permit the mould and blight growth at the bottom of the log pile.

I think there should be a log washer. That is a mechanical device that scrubs and washes the logs.

Then they are dipped in a copper sulphate solution, which is for the purpose of destroying moulds and blight and yeast usually on the surface of logs stored in the open air and subject to moisture conditions.

1720 Q. You say that is done or it should be done?

A. It should be done. It is done in some places. It should be done everywhere.

When the matter of reused material is added to the raw products or substituted for the raw product, the problem there is—

The Master: Q. What do you mean by reused material?

A. I mean raw material that has been made into paper and then this paper put back into the system and disintegrated and used again, reused material.

We can classify reused material, ordinarily, in paper work, in three groups. One is broke, one is trim and one is chip.

Now, the broke, as the name indicates, is when the sheet breaks in its formation. When the mill keeps running, there is an accumulation of irregular pieces, different lengths and sizes and irregularities, that are thrown back into the original stock again. That is called broke. If this broke is handled carefully, there is no objection to it from a public health standpoint, but if it is allowed to fall on the wet floor, the floor happens to be dirty, there is tracked-in mud or tobacco juice—that is, you cannot smoke in

1721 a paper mill and there is plenty of tobacco juice—then the broke becomes rather an unsanitary material.

But if it is prevented from being contaminated with dirt, dust or moisture, it can be used again without any sanitary hazards.

The trim comes from the conversion departments. When the blanks are stamped out, there is always some reserve material. That again, if it is handled properly, baled immediately and protected and stored in a sanitary place, can be used without any public health hazard.

The chip is waste paper, collected from all sources and under all conditions, collected from alleys, streets, office buildings. Newspaper print and all sorts of material go into chip. That has no place at all in a mill that is making paper for milk storage and distribution.

Mr. Schaefer: Q. You mentioned the water supply, Doctor, as a matter of significance. From the point of view of the protection of the public health, what if anything is the sanitary significance of the type of water supply used in paper mills manufacturing paper for use in milk containers?

A. I think the water supply is very significant, not 1722 only the fresh water coming in, but the recirculated water inside the mill. There is about ten times as much water in circulation in the mill as is brought into the mill at any particular hour or day.

Now, the fresh water that comes in seldom meets drinking water standards. It is usually water that is cheaper than the municipal water supply. Only those located where they can have mountain water or artesian water have really water that meets drinking water standards.

The water is usually filtered, that is, for commercial purposes, to prevent spotting of the paper, and it is chlorinated to destroy the bacteria.

Fresh water, clean water, requires only a small amount of chlorine. One or two parts per million will reduce the bacterial count to a satisfactory level in pure, clean water. But as soon as that water is put into the mill and is mixed up with the pulp, the pulp very rapidly takes the chlorine out. The chlorine combines with the organic material in the fibre.

It is necessary to recirculate water in the mill, because in the formation of the sheet of paper the water running off from the paper machine contains some fibres in 1723 suspension.

If this is dumped out in the sewer, the mill will lose several tons of pulp per day. In order to save that dissolved, suspended pulp, they reuse that water, which they term a closed system. Almost all mills use the closed system, to economize on the suspended pulp in the used water. This goes over and over again.

This closed system is a bacteriological culture medium. The water is usually warm, around 100 to 110 degrees Fahrenheit. With the pulp in suspension and soil bacteria that usually get in through the water or through the pulp,

we have a bacterial culture and the build-up of culture in the closed system, built up to several hundred thousand or even million bacteria per cc of the closed system. If one considers that there is sometimes twenty to fifty thousand gallons of water in the closed system, the bacterial population in it would be a tremendous number.

That could be prevented by the use of continuous chlorination of the closed system. Ordinarily we use ammonia along with chlorine, which prevents the chlorine from being dissipated or being used by the pulp too rapidly. It stabilizes the chlorine. It is what is known as chloramine, which is a mixture of chlorine and ammonia.

With a continuous supply of chloramine fed into the circulating system, one can reduce the bacteria to a low level, that is, within sanitary and public health safety factors.

Ordinarily, the amount of fresh water brought in equals the amount of overflow water. They try to keep their closed system full, and as the water flows out fresh water comes in, and the amount will vary tremendously from hour to hour, depending upon the overflow system.

Q. Will you describe the overflow system, Doctor?

A. The overflow system is in two parts. Part of the fresh water coming in is used for washing and cleaning purposes and is used for cooling purposes. That is all overflow. Then there is a certain amount of overflow from the closed system, which they are trying to minimize, because that contains valuable stock, and it will go out in the sewer instead of into the paper sheet.

Q. I think you mentioned the physical equipment of the mill as a matter of sanitary significance. From the point of view of the protection of the public health, what significance, if any, do you attach to the physical equipment of a mill manufacturing paper for use in milk containers?

A. I think the physical equipment is an important factor from a public health standpoint. The physical equipment will vary with the type of pulp used, that is, whether it is mechanical pulp or chemical pulp, or whether it is a mixture of both. It also varies as to whether the mill makes its own pulp or buys the pulp already prepared. There are all variations between those in the various mills.

In principle, it consists of a series of vats or tanks in which the pulp in solution or in suspension in water is stored.

The principle of paper making is to disintegrate the wood into small individual fibres, suspend these fibres in the water, and then by means of a woolen belt, which they call felt, a felt belt which is made of Australian lambs wool, long fibres—probably the best wool on the market—these long fibres sticking out from the big flannel belt, goes through a pan containing fibres in suspension in water.

There is about five per cent pulp and 95 per cent water.
1726 As this flannel belt goes through there, it picks up fibres on these rough pieces of wool that stick out, and that is the way the sheet is formed. It goes from the felt on to the dryers.

Now, referring to the vats, the whole system of the vats is to use the mixing of the water with the fibres, increasing the dilution each time through a beater system, or pulpers, and various mechanical means, in order to get a uniform distribution of fibres in a low dilution of water.

Most of those vats are cement vats, made of cement. Cement vats are objectionable, because the inner surface is rough, and as a vat full of pulp is emptied the pulp tends to stick along the sides of the vat, because it is rough, and holds it. The vat will remain empty for a couple of days, and is filled up again, and there is a coating of dry pulp on the inside. That is many times repeated, until there is a build-up of several inches of pulp on the inside of the vat.

This pulp grows bacteria, slime, and becomes quite a source of annoyance to the paper mill, and it is important from a public health standpoint, in that it feeds into
1727 the closed water system a high content of bacteria. It acts as a reservoir for bacteria.

If these cement vats are lined with glazed tile, it makes a much more sanitary part of the physical equipment, in that the pulp, or, as the paper men say, stock, does not build up on the sides of the vat and does not act as a reservoir for bacteria feeding into the system.

The pipes should be of copper. Iron pipes act like the cement. The insides of an iron pipe will cause a few fibres to adhere, and they will build up and build up, and the joints and angles and elbows of the pipe build up bacteria very fast.

The bacteria and mould and things that go in the so-called slime that is building up on the inside of the pipe act on the iron, and that build-up is sometimes as black as a piece of coal, containing numerous bacteria; and that is the typical slime spot in the finished paper. It is usually a

mixture of iron pigments from the iron pipes, with the slime that is built up on the inside of the pipes.

There are so many variations in the physical equipment, the screens and the various pulping machines, 1728 that they hardly need any comment.

The next piece of equipment of importance is the paper machine itself. A paper machine is divided into two parts, what we term the wet end and the dry end.

The wet end of the paper machine is that part of the machine where these felts are picking up fibres from the dilute fibres in water. The number of felts in circulation will depend upon the thickness of the sheet that is being formed on the machine at that time. The felts pick up the fibres with the water and then squeeze it out, as they go through the rollers. So the felts can build up a great number of bacteria in the felts.

At periods of close-down, the wet end of the machine should be filled with a chlorine solution and the felts run through it or cleaned, to disinfect them.

From the felts the sheet passes on to the dryers. There is a space between the felt system or wet system of the machine and the dry system. This space is bridged over by a sheet that we term a wet web. Now, the wet web is the sheet that is strong enough or at least has enough fibres in it, with part of the water out, to stand by itself and to 1729 be a sheet.

Then it passes over to the dryers. There is usually about 70 per cent water and 30 per cent fibres in the wet web. Then it goes to the dryer system.

Now, the real characteristic of the mill is its dryer system. Everything else is about constant.

Now, the dryer system has been referred to in previous testimony as hot cylinders.

The Master: Q. Hot what?

A. Hot cylinders. They are really dryers in the paper manufacturing language. These are heated by steam and are pressed against each other with a certain pressure.

The purpose of the dryer system is dehydration. When the finished paper comes out, it is about five per cent wet and 95 per cent fibres. When it starts in at the beginning of the dryer system, it is 30 per cent fibre and 70 per cent water. The dryer system is for the purpose of reducing the water to about five per cent.

If there is a larger dryer system, say 80 to 100 dryers,

which is a large dryer system, the sheet will go through very fast, and the production will increase. If there are 1730 half that many dryers, the sheet will go through just half as fast, as the purpose of the dryers is to reduce the aqueous content of the wet web to about five per cent moisture.

The dryers usually have an artificial ventilation above them, so as to prevent the accumulation of moisture on the ceiling. On the top of the dryer system, where we have hot air and water evaporated, it would add right back to the dryer again, and soil the sheets or spot the sheets. So they usually have artificial ventilation or a blower system over the dryers. That blows the air from the outside on to the top of the dryers and that is pulled off by negative pressure, to keep a rapid circulation of air over the dryers, to prevent condensation of water.

This blower system and artificial system of ventilation should be filtered air. If it is not filtered, then the amount of bacteria deposited on the sheet in its formation will vary according to atmospheric conditions. If it is a dry, windy day, there would be a great number of bacteria in the air. If it is a quiet day, with no wind, and after a rain, there will be very few bacteria in the air. So the surface contamination of the sheet will vary with atmospheric conditions, unless there is filtered air used in the artificial ventilation of the dryer system.

Then from the dryers they pass on to what they call a calender. On the calender stacks water is sprinkled on the sheet and pressed through a cold steel process—they are in cylinder form—for the purpose of putting a gloss on the surface of the sheet, and it also renders the surface of the sheet partly water resistant. It is just a very thin, hard, shiny layer over the sheet of paper. There is no heat used in the calender stacks, and the water in the calender stacks should be sterile, because any bacteria added or in the water in the calenders will be added to the finished product.

From the calenders it passes over the rollers, and it is either rolled in rolls or is cut in squares.

The entire system is considered a closed system, because of the closed water supply and the reuse of the water and the reuse of the pulp.

In a mill running paperboard for milk containers, that makes other paperboard, oftentimes of less sanitary quality, there may be a mixture of the two pulps.

If, for instance, they are making a side-1732 wall board for boxes or for some purpose for which there is little need of sanitary control, they usually use chip board in those cheaper or what I might say carton-like products.

If we get the system filled with chip board, which has a very high bacterial count, and then we start running virgin pulp through it, it takes several hours to work out all of the chip board and produce a sanitary sheet, although the sheet may meet all specifications as to color and thickness and consistency, but it will have a very high bacterial count, until the chip is worked out of the system.

Q. You mentioned as a matter of public health significance, Doctor, the matter of manual contact in the paper mill. What is the sanitary significance of manual contact with paper in paper mills manufacturing paper for use in milk containers?

-A. That is of relative importance. It is a minor problem, because the amount of manual handling in the mill is very small compared to the manual handling later on in the conversion period.

There are usually about three, not more than four men on the dry end of the paper machine. It is usually a 1733 mechanical process, and it is only when difficulty arises, like a break, where there is manual handling, or when the paper is being rolled there is sometimes manual handling if the roller stops.

The amount of manual handling will vary on the finished product, as to whether it is in squares or in cylinders, or rolls. The squares, of course, are exposed more, because they have to be cut and stacked. That is done to a great extent mechanically, but there are still the edges and tops that are sometimes touched, and there is a greater hazard where there is a second operation than where the primary operation of rolling or in rolls is the only one carried out.

Q. You mentioned the matter of storage of the paper as a matter of public health significance, Doctor. From the point of view of the protection of the public health, what is the sanitary significance of the storage and packaging of paper in a paper mill?

A. If the paper comes out in rolls, there is little advantage in wrapping it, because the outside of the roll is usually soiled in rolling it to the storage or trucking it, and in the conversion the outer two laps are thrown away,

because they are dirty. They form a seal. The edges 1734 are usually touched by hand, but the stamping operation usually eliminates the edges anyway.

Some of the mills wrap the rolls. It depends upon the distance of conversion. If they have to be shipped by train or truck, they should be wrapped. If the conversion unit and the mill are in the same building, the rolls do not have to be wrapped. They can be trucked over to the conversion unit.

In the wrapping they should be wrapped securely and kept dry. In the wrapping the quality of the wrapping paper should be such as not to contaminate the clean sheet. I mean by that, if we have a wrapping paper made of chip board, that would be unsatisfactory, but if the board has a liner, or what we call kraft—kraft is southern pine, a very economical article—if it is lined, it will prevent the bacteria in the chip from coming in contact with the finished paper in the storage and handling, which would be satisfactory from a public health standpoint.

Q. Is the manner of handling paper board for use in paper milk containers, while that board is being transported from the paper mill to the plant where it is converted, of any significance from a public health point 1735 of view?

A. Yes, I think it is.

Q. Why is that a matter of public health significance, Doctor?

A. Because in transit it depends upon the cleanliness of the truck, the box car, the flat car or whatever it is they are transported in. It depends upon how securely it is wrapped. If it becomes unwrapped or torn, then the sheet is exposed to damp conditions, rain, snow, and also exposed to handling by the employees, or even walked on, getting dirt from the shoes, and various other things, unless it is wrapped securely. It should certainly be protected from moisture, because moisture, plus dirt, will support bacterial growth on the surface of the paper.

If it becomes unwrapped, then it becomes a public health hazard in the massive exposure to contamination, not only from dust and air, but also from human contact during transportation and handling.

Q. From the point of view of the protection of the public health, Doctor, what are some of the important problems in connection with the cutting, scoring and printing of paper for use in milk containers?

A. Cutting, scoring and printing is a part of the conversion of the paper. It is a part of the process of 1736 converting the continuous sheet into a finished product.

The important factors there, from a public health standpoint, are the storage conditions in the converting plant of the finished material received from the mill.

Again, there, it should be stored in a clean, dry, light space, free of cockroaches and rats and mice and vermin of all kinds. It should be wrapped to protect it from contamination.

It is quite true that the edges of the sheet, if it is in a flat sheet, or the edges or ends of the rolls, do not go into the finished product, but nevertheless, the workman or the man putting the rolls on the machine touches the ends and then he touches the finished product; he adjusts the sheet, and he conveys from the exposed edges the bacteria accumulated on to the sheet that goes into the finished product, and the exposed edges, although they may not of themselves be part of the finished product, should be protected from contamination for that reason.

Q. Is there any sanitary problem in connection with the printing of paper containers for milk?

A. Yes. The printing is usually a second operation.

The first operation is the blanking or the cutting out. 1737 That is usually done automatically by a machine.

There is a minimum health hazard, as long as the machine operates 100 per cent efficient, but when it jams or stops, then the operator has to pull out the container, and he is very careful to inspect the first few that come through after he starts over again, and he inspects the last that went through, to see that they are in good shape. The health hazards there are associated with the mechanical imperfection of the blanking machine.

If the paper container to be manufactured is square, there is what is called a scoring operation. If it is a circular container, it is not the scored. The scoring operation is an operation whereby a depression is made in the sheet, so that it will bend easily over that depressed area.

Again, the scoring operations have the same health hazards that the blanking operations have, which are only associated with the imperfection of the machine, the number of times that it has to start and stop again.

Now, the printing operation is associated with more health hazards, because as the blank is printed and stacked, if there are very many blanks stacked on 1738 on top of each other the pressure is so great that offsets will occur, that is, the top of one blank will print on the bottom of the blank above, so to prevent offsetting they never stack the blanks very high when they come off the printing machine. Twenty or thirty blanks are plenty. Sometimes not that many.

So that as a result they are very frequently picking the blanks up and handling them, and there is more handling in the printing operation than in either the blanking or the scoring operation.

These blanks then are usually kept about 24 hours. Before they are wrapped or before the conversion is finished, if it is all finished in one plant, they should be protected from dust and dirt and they should be covered. The covering also protects them from human contact, so no one lays hands on them, dirty hands, or does any sneezing or coughing around them at all.

Q. Is the type of ink used a matter of public health significance, Doctor?

A. Yes, sir, I think it is. I think the ink used should be as free of toxic material as possible.

The Master: Q. Free of what?

1739 A. Of toxic material, poisonous material, as is possible.

Q. Yes.

A. Most of the inks do contain some heavy metals as part of the dryer in the ink or part of the vehicle of the ink. The matter of offsetting, that is where the printed top of a blank comes in contact with the unprinted bottom or inside, presents some public health problems, and if this occurs with regularity or very frequently you really have on the inside of the blank, next to the milk, a material that is toxic. It is in small dilution, a very small amount, but a very small amount of heavy metal ingested over a long period of time is certainly a health hazard, and particularly a health hazard for the infant and the young child.

Mr. Schaefer: Q. Are there any health hazards associated with the forming of paper milk containers?

A. The forming of paper milk containers is divided into two phases. There is one group of containers where the entire conversion takes place in one plant. They leave

that plant as finished containers, ready to be filled in the dairy.

The other group, after the printing operation, after 1740 they are blanked, scored and printed, those flat blanks are shipped to the dairy and the conversion is finished in the dairy.

I think the same general principle of prevention of human contact and the avoidance of any contamination from air, dust, moisture, should hold for both of the forming processes, whether they are in the same plant or in another plant.

Q. Is the type of adhesive used or applied in forming the container a matter of public health significance?

A. Yes, sir, I think it is. We can divide our adhesives used into three groups.

One is the so-called protein adhesive. That consists of animal glue and casein. Animal glue is a by-product of the packing house industry and should never be used on a food container. Animal glue is a by-product of what we call tankage. Tankage in the packing house industry is condemned carcasses, not fit for human consumption, that the federal inspectors of the United States Department of Agriculture condemn, and they go into a tank and are boiled out. This animal glue is a by-product of the tankage material. It is usually highly contaminated and may contain even lock-jaw bacillus germs and any other germs.

1741 The other type of protein glue is casein, which is a by-product of the skimmed milk industry. The lactose, milk sugar, and casein and milk protein, are recovered from skimmed milk for commercial purposes. Casein usually contains many bacteria. It is a good culture medium and contains several thousand bacteria per gram or even several hundred thousand per gram, of the dried material. Casein is used in milk containers. Some milk containers have casein glue on them.

Now, the other type of glue are the starchy glues, which are of corn starch, tapioca and various types of starchy materials. These glues will support bacterial growth. They are not as grossly contaminated as is casein glue, and there is very frequently an antiseptic of some kind added to the starchy glues to prevent bacterial growth.

The Master: Q. How many kinds of glue have you now? You have the animal glue, the casein glue and what other?

A. The starchy glues.

Q. Yes.

A. The other class of glues are the resin glues, or what is termed in the industry high melting point glues. They are really thermo-plastic substances. They are artificial resin material, which when heated to 250 or 300 degrees Fahrenheit, is liquid. On cooling they become solid, and they form a gluey mass, with an adhesive surface, and are very effective adhesives, and are perfectly safe, as the temperature to which they are applied sterilizes them.

Those are the three types of glues,—protein glues, starchy glues, and the resin glues.

Mr. Schaefer: Q. Do the resin glues look like the material that you find on the top of a bottle of Scotch?

A. No, I don't think they do. They are much thinner. They are colorless. Looking at a container you cannot tell any difference between the resin glues and any other group, after you open the seam.

Q. Is the matter of the physical condition of the employees in a conversion plant a matter of public health significance, Doctor?

A. Yes, I think it is.

Q. Why?

A. It is much more significant, the matter of the health of the employees and the health habits of the employees in the conversion plant, than it is in the paper mill, because in a paper mill there are only about three or four thousand employees on the dry end of the machine. They make tons of paper a day. In the conversion plant there are several hundred employees in proportion to each one in the paper mill that comes in contact with the product. Their state of health and their habits of cleanliness is a very important factor in preventing contamination of the product.

In the conversion, our health problems there are to prevent the contamination of the product with human bacteria, that is, with bacteria from the nose and throat, bacteria from the feces and the urine, which from a health standpoint are very dangerous bacteria, because accompanying those bacteria are the bacteria that produce disease in man, and the contamination during conversion or at the last steps of the conversion process with human bacteria has real major public health significance.

Q. Is the matter of hygienic facilities and practices in the conversion plant a matter of public health significance?

A. Yes, sir. You cannot expect employees to keep their hands clean unless you provide convenient facilities for doing so.

An employee working on a piece basis, getting paid by so many pieces of work an hour, so many containers 1744 an hour, to expect him to spend ten or fifteen minutes going to some distant place to wash his hands,—why, he just does not do it.

The washing facilities should be at hand and very close at hand, and the employees should be relieved at least every two hours, probably every hour, to allow him or her to clean their hands and wash them and keep them from becoming contaminated, and thereby contaminating the product. A clean hand is a safe hand. A dirty hand is a dangerous hand.

Q. From a public health point of view, Doctor, what matters are of significance with respect to the paraffining of paper milk containers?

A. I think the type of paraffin used, that is, the quality used, is an important factor.

The process in the industry is called waxing. It is a waxing process. In the manufacture of food containers in general they use waxes of various kinds. They do not always use USP paraffin. They use lower grades in their waxing procedures. For milk containers I think it should be a USP paraffin, which is pure paraffin, and the paraffin should not be oxidized to acid products or other unknown materials which vary in concentration, according to time of heating or amount of oxidation.

1745 Q. Is the shape of the container a matter of significance with respect to the effectiveness of the application of paraffin?

A. Yes, I think it is. No matter whether the container is round or square, there is always a seam in it, where the edges are lapped over, forming the package. That is a side seam.

This side seam has two thicknesses of cardboard, overlapping, with a glue between the two, giving a relatively thick area, as compared to the remaining part of the container.

As this container is dipped into hot paraffin, inverted

and allowed to drain out, the double-lapped board retains the heat longer than does the rest of the container, because of its thickness; it holds the heat longer. In holding the heat longer, the paraffin remains liquid longer over the seam, which tends to decrease the amount of paraffin that solidifies over the thickened seam.

The second factor and one which I think is of equal significance is that there are two open ends at the seam, that is, the ends of the board.

Now, in the calendering operation, in the glossing operation, the surface is hardened and smoothed by a 1746 tremendous pressure in these dry, cold cylinders.

That gives a gloss and a hardened area to which paraffin sticks very well, but at the ends of the container are fibres that are open and the whole mass of the paper board is open, it is not calendered at all, so as long as the paraffin is liquid it goes into the board at the ends, and we have two ends which are pulling on the liquid paraffin by capillary attraction into the board, so we have both factors that tend to limit the thickness of the paraffin layer over the seam area.

Another matter of public health significance is the glue that is on just that area where we have the thinnest coating of paraffin or the most imperfect coverage of paraffin almost anywhere in the container.

Then the other areas are the corners of container, if it is a square container. In the scoring operation there is simply a depression or a trough pressed into the board, so it will bend easily at that point. In the scoring or the bending of the paper the cellulose fibres or strands that cross over this area are fractured or broken during the bending of the paper at right angles. If you look at that with a magnifying glass, either the outside or the 1747 inside of the angle, you find fine fibres sticking up, like hairs on the head, just little fibres sticking up, and the reason for the imperfect paraffining at those corners is the fact that these open fibres fill up with paraffin, like the open ends at the seam, and the liquid paraffin, as long as it is liquid, tends by capillary attraction to go into these broken ends of the fibres. So it really comes down to the point that the surfaces that are imperfectly paraffined are usually the surfaces that are not covered by the calendering operation.

Sometimes there are areas on the bottom of the con-

tainer that are not properly covered with paraffin. Those are usually caused by some imperfect die, used in forming the container. If the die is roughened on the bottom and the container is formed around it and is pressed against the bottom, that roughened die will fracture or break the calendered surface, and again we have exposed fibres that have not been smoothed down in the calendering operation. The paraffin there will be thin, and sometimes, if there is considerable injury to the fibres, all of the paraffin will be absorbed into the board.

Q. Is the bactericidal action of the application 1748 of paraffin to paper board affected by the moisture content of the paper board?

A. Yes, sir, it is.

Q. Why is that so, Doctor?

A. Paraffin is an oil, and paraffin without any water in it at all is a very weak germicidal agent, in the general sense of the word. It acts the same as dry heat. Dry paraffin has the same bactericidal power as dry heat.

Q. By dry paraffin, Doctor, do you mean dry hardened paraffin?

A. No, I mean paraffin without any water in it at all, dehydrated, dry paraffin, without any water.

Q. Heated, melted?

A. Yes. The moisture in the board is heated along with the board when it is submerged in hot paraffin. The hot paraffin penetrates very rapidly the surfaces of the board, and as the interior of the board is heated, with this hot paraffin, with the surfaces sealed, and there is moisture present, then we get a similar effect as the flash pasteurization of milk, which is the pasteurization of milk at high temperature for a few seconds. The moisture is imprisoned in the board and is heated by the hot paraffin, and then we have an aqueous system or water system 1749 of sterilization inside the board, and the greater the amount of water the more rapid will be the bacterial killing time. The less amount of water, the slower will be the bacterial killing time, all other conditions being equal.

Q. Have you performed experiments, Doctor, designed to determine whether or not paper containers for milk are absorbent?

The Master: That is, paraffined containers?

Mr. Schaefer: Paraffined paper containers, yes, sir.

The Witness: A. Yes, sir, I have.

Mr. Schaefer: Q. What type of experiments did you perform, Doctor?

A. I performed one experiment, you might say, in two sections. One was to add a dye to the milk.

Mr. Gariepy: When was this?

Mr. Schaefer: Q. When did you perform these experiments?

A. Those experiments began in about May, 1938, April or May, 1938.

Q. Go ahead with your description of the experiments.

A. A dye was added to the milk in the container. That is, the container was full of milk. It was opened and a dye added. We usually use a red dye.

1750 The container was closed and returned to the ice box for 24 hours. Then it was opened and emptied and rinsed out, free of milk or adhering milk or dye. Then it was opened up and examined. The areas where the milk penetrated carried the red dye with them.

The other experiment was to obtain paper containers filled with milk, empty the milk out immediately, rinse the paper container well with water, to free it of all milk or adhering substances, and then fill it with a weak solution of methylene-blue, or any other common dye. I have used half a dozen different dyes. They all act about the same.

Then leave that in there for one hour or two hours, empty it, again rinse the container free of any adherent material, and open it up and examine it.

In some instances, as in the first test, using the red milk, we rinsed out the container; and then it was filled with methylene-blue, and let set for a couple of hours, and then examined.

In all three of these tests, the distribution of the stain or the dye in the container is approximately the same.

1751 Q. Were all of the containers which you examined absorbent?

A. Yes, sir, all of them.

The Master: This may be a good stopping place for a recess. Suppose we have a five minute recess.

Mr. Schaefer: Very well.

(A short recess was here had, after which the proceedings were resumed as follows:)

The Master: Proceed, Mr. Schaefer.

Mr. Gariepy: If the Master please, there appear to be some very interested spectators in this matter. Mr. Greer, are you one of them here?

Mr. Greer: I am a spectator, and very much interested.

Mr. Gariepy: Are you with the Glass Bottle Institute?

Mr. Greer: I am counsel for the Independent Milk Dealers Association.

The Master: What has that got to do with this, who sits here?

Mr. Gariepy: I want to show who is present. You wanted to know about Dr. Tonney.

The Master: I don't want to know anything.

Mr. Gariepy: Very well.

The Master: I don't think it is any concern of the 1752 court who is sitting here. The only thing about Dr.

Tonney is this: The reference was made to him because he seemed to be actively engaged in helping you.

Mr. Gariepy: And Mr. Greer has been talking to Mr. Schaefer during the recess, so he seems to be interested also in the glass bottle proposition.

The Master: I don't think that has anything to do with it. It is not important to me who sits here.

Mr. Greer: I might say to the Master that I am a member of the Bar of Massachusetts and I am interested in similar matters. I asked Mr. Schaefer about what has been going on and he has very kindly given me some information.

The Master: Let us go ahead with this lawsuit here.

Mr. Schaefer: Q. From the point of view of the protection of the public health, Doctor, do you attach any significance to the fact that paper containers for milk are absorbent?

A. Yes.

Q. Why?

A. Well, non-absorbency or impermeable surfaces are required of all milk containers.

Mr. Gariepy: I didn't get the names of those surfaces, impervious or not?

1753 A. Impervious or impermeable surfaces are required of all milk containers from the time the milk leaves the cow until it gets to the consumer. Smooth, impervious, non-absorbent surfaces are required of the milk pail or the milking machine, if that is used, the can that conveys the milk from the farm to the receiving

station, all of the receiving station equipment, the tanks, tank trucks and all of the pasteurization equipment, as well as the final container in which the material is distributed to the consumer.

I think if it is absorbent, then we introduce so many factors as to what it is absorbing, how much it is absorbing, that it becomes quite a major public health problem.

Mr. Schaefer: Q. What effect has absorption with respect to the transmission of material in the paper to the milk?

A. I think it has quite an important effect. When a container is absorbent, as a paraffined paper container, the milk—

The Master: Pardon me. Let us have a recess for a couple of minutes.

(A brief intermission here ensued.)

1754 The Master: Continue.

Mr. Schaefer: Q. Complete your answer, Doctor.

A. The milk will penetrate through the paraffin or, in unparaffined areas, into the paper board. This forms a liquid bridge in which materials can pass in both directions, depending upon pressure, position of container, and so forth.

Then the type of bacteria present in the paper board and on the surface of the paper board becomes a major public health problem with a porous container.

These bacteria can be roughly divided into two groups. One are the soil bacteria, and one are the bacteria derived from human source.

Now, the soil bacteria are bacteria in the ground. Those bacteria have been in the ground multiplying and growing for millions of years. They are necessary for the life of man. When anything is deposited on the soil, like a leaf or a corn stalk or a dead bird or a dead man, these bacteria in the soil decompose. That material is converted into simple mineral substances, which are in turn taken up by the roots of plants, pass up the stalk of the plant or tree, and are synthesized or built up into food products

that man uses or animals that feed on plants, and
1755 man feeds on them.

So the soil bacteria are very necessary for our existence. Those bacteria are characterized by their ability to decompose starches and proteins. They are very active in a chemical sense. When those bacteria get into paper board and get into the milk from the board, they

do what they have been doing for several thousands of years, what their ancestors have been doing,—they start decomposing the milk. That is their function. Both the casein part or the protein is decomposed in the milk container, just like it is decomposed if you pour it on the ground where those bacteria are.

Also the sugars are decomposed.

The Master: Q. The sugars in the milk?

A. The sugars in the milk are decomposed if they come in contact with these bacteria. That is their function in nature, that is, to reduce complex substances to simple substances.

In the process of decomposition, particularly with casein or protein, there can be toxic products formed. That is the amins. Amins are split down protein material that are toxic for men. They cause irritation. They carry diarrhea, increased peristalsis of the intestinal tract. Those that break down or decompose the sugar form acids.
1756 Those bacteria are not disease producing, but they are harmful in that they decompose milk.

Then a second problem from a public health standpoint is that when we find a food or a food product or a food container that is high in bacterial content, assuming that they are harmless soil bacteria, we interpret that as unsanitary practice. In some way the soil is transported into the food. Then it is just one step to transport sewage into the food, or transport urine into the food, or saliva. So a high bacterial count, admitting that they are harmless bacteria, has considerable public health significance. It indicates unsanitary practices.

Now, as to the human type of bacteria, they are the most harmful ones.

Most of the activities of the Health Department are concerned with preventing the transfer of contagion from one person to another. The vast majority of our diseases are human diseases, transferred from human to human. So when we detect on a food container human types of bacteria, we immediately suspect that pathogenic or types that cause diseases may be associated with those human types.

1757 In the nose and throat of man we always have bacteria. Not all of them are disease producers, but we may have chronic carriers of diphtheria, scarlet fever and other diseases, which can be conveyed by saliva or by con-

tamination of hands with saliva to a food or a food container.

When we find human bacteria, we are convinced there is a break in what we term sanitary technique, and it becomes a major public health problem.

Then continuing with the question as to the degree of absorbency of the container, that is an important factor, but the mere fact it is absorbent indicates a public health hazard. Whether it is absorbent on the bottom, through a rough die, or at the scoring line, due to breaking of the fibres, or at a seam, due to the double thickness in the free ends, whether one or all places are absorbent, the mere fact it is absorbent is of considerable public health concern.

The matter of offsetting is also of public health concern. As I mentioned before, it is quite true that one or two containers, with the ink on the inside of the offset, if the paraffin chips at that place and conveys the ink in the paraffin to the individual, that would not be very significant, 1758 but if that occurred frequently, daily or several times a day, it would be a major public health problem.

The Master: Q. What would be?

A. The presence—

Q. Of offsetting?

A. (Continuing.) —of the offsetting getting into the milk, containing heavy metals. If you look with a magnifying glass at the printing material on a container, it is in a ridge. It is an insoluble substance pressed down on the container, with a rapid oxidizing or drying agent that dries quickly. The offset is just the same thing. It is just a little ridge of insoluble dye containing heavy metal, and that chips off with the paraffin into the milk.

Q. Is there any bacteria in the ink?

A. Yes. It is a chemical poisoning and not a bacterial poisoning.

Q. You think one is just as bad as the other?

A. Yes, sir.

Mr. Schaefer: Q. Has the presence of offsets any effect on the efficiency of the application of paraffin, Doctor?

A. I doubt whether it plays much of a role in that. I am not sure, but I don't think so, sir.

Q. Have you an opinion, Doctor, as to the accuracy 1759 of the test described in this testimony as the rinse test as a means of determining the bacteriological condition of paper milk containers?

A. Yes, sir.

Q. What is that opinion?

A. I don't think the rinse test, as applied to a porous container, compares to the information you can get from a rinse test made upon a non-porous or impermeable container.

With the porous container, it depends upon the porosity, the degree of porosity. Then the rinse test does not give you the right picture, because the danger of the paper container for milk is that that milk is stored in the container. If it were used for a drinking cup, it would be a different problem, but we have milk storage here.

The Master: Q. You have what?

A. Milk storage, for a duration of hours, the milk is stored in the container.

Q. Yes.

A. For that reason the rinse test does not give you the degree of permeability of the container after storing milk for one, two, three, or four days, as might happen the home, in the ice box.

1760 Mr. Schaefer: Q. In actual operation?

A. Yes, sir.

Q. Have you an opinion, Doctor, as to the accuracy of the test that has been here referred to as the disintegration test, as a means of determining the bacteriological condition of paper milk containers?

A. Yes, sir. I have worked for about eight or ten years on various problems associated with the way cellulose fibres react to bacteria.

Now, a wood fibre is a cellulose tube. It is just a tube forming a wall with cellulose, and that is impregnated for stability purposes with what we call lignin. Lignin is a sort of resin product manufactured or formed by the tree that impregnates these cellulose tubes that make up the tree substance. These tubes are for the purpose of conveying the liquid from the root up to the leaves. The action of sunlight and temperature on the leaves produces a slightly negative pressure or slight suction, and that is sufficient, with the capillary attraction in these long slender tubes—there are billions of them running up the length of the tree—these tubes, by capillary attraction, bring water and sap up from the roots.

When we purify those cellulose tubes, we remove all of the lignin, or as much as we can, and just have the tube.

1761 That is what our pulp does. It is just purified cellulose tubes or fibres.

These are hollow tubes, and they have a tremendous attraction for bacteria.

I think it is the difference in the electrical charges between purified cellulose and bacteria that causes the attraction of bacteria on to the fibre, but with cellulose fibres, when bacteria touch them, they will stick, and they will stick a long time. Even by putting them in a mechanical shaking machine it is hard to release them from the fibres.

In my opinion, what happens with our disintegration test is that we are counting the number of colonies that develop from a disintegrated sample of paper. That part of the test is accurate, but the part that I think is in error is that we consider each one of those colonies to be one of the bacteria. I think that is wrong. Our whole system of sanitary water and milk analysis is based on that assumption. It is probably true here, because we have bacteria suspended in a liquid, like in urine or in water or in milk, but when we have cellulose fibres in there, then we have a hundred bacteria or a thousand collect on that fibre. When that fibre is put into growth promoting media, we have one colony. That one colony does not represent one bacterium. It may represent an X number of bacteria, which is impossible to know.

So I doubt very much, in fact I am convinced that our disintegration test, interpreted in the same way as water counts, as milk counts, is wrong. I think we have many more bacteria in our sample than we are counting, assuming that only one bacteria forms a colony. There are many more bacteria in each colony.

What substantiates that past experience with cellulose fibre is that if you look under the low power of a microscope at an agar culture in a Petri dish, you will find that the vast majority of the colonies that develop are developed in relation to a fibre. The original inoculum was on the cellulose fibre. I think from my past experience with the cellulose and observing the disintegration counts, I don't believe they give you a true picture of the number of bacteria present.

Q. In your opinion, Doctor, is the fact that paraffin from paper containers gets into the milk put into those containers a matter of any public health significance?

A. Yes, I think it is.

Q. Why, Doctor?

A. I don't think it would be significant for an adult 1763 or a healthy growing child, but I do think it would be significant for a baby or a child suffering from diarrhea or a senile, older person suffering from diarrhea, or premature babies, even though they are healthy, because while paraffin is not irritating, it is just a foreign body, it is a foreign globular mass that is in the intestinal tract, and if the intestinal tract is reddened, inflamed, irritated, it is just an added irritation, in a mechanical sense.

Q. Is milk an essential part of the diet of infants, Doctor?

A. Yes, it is essential and necessary.

Q. Is it an essential part of the diet of injured persons and convalescents, normally?

A. Yes.

Q. Is it an important part of the diet of children?

A. Yes; it is.

Q. Have you an opinion as to the proportion of the total milk consumed in the city of Chicago which is consumed by children under the age of twelve?

A. Does that question refer to fresh fluid milk only?

Q. Yes, sir, fresh fluid milk only.

A. I would say more than half, considerably more 1764 than half. I would hesitate to give the exact percentage.

The Master: Q. May I ask a question there? With reference to the irritating effect of a bit of paraffin in the intestinal tract, all solid food causes irritation to the intestinal tract, doesn't it?

A. I don't think so. It is according to what you mean by solid food, Master.

Q. Let us put it as anything that leaves a residuum to be passed off through the intestines.

A. No. You take milk, for instance. The coagulum of milk is so broken up that it is just a gelatinous mass, just a weak mush in the intestinal tract, not in hard globules, not in solid masses. That is the reason we do not feed the infant on solid food until he is six or eight months of age. We do not give solid food to a six year old child who has diarrhea. We avoid anything that is of a solid mass in the intestinal tract, because it increases the expulsion force.

Q. Do you think there is enough paraffin in a pint of milk to cause any trouble at all?

A. I think anything that is foreign in the intestinal tract, a foreign mass, a physical foreign mass, is detrimen-

tal. The quantity will depend upon the extent of the detrimental part.

1765 Q. You are talking now about infants who are not taking in any food that leaves any fibrous material?

A. Yes.

Q. To cause irritation?

A. Yes, sir, and the premature infant.

Q. Do you think what might be characterized as an infinitesimally small amount of paraffin might cause any damage?

A. No, I don't think so, not such an amount as that, but the amount varies, I understand.

Q. Would you say there is very much in an ordinary drink of milk?

A. No. I would not say there is very much, according to what I have heard.

Q. How much milk would you say would have to be drunk before there might be enough paraffin taken in to cause some damage?

A. If there was a spicule of paraffin in an ounce of milk, it would be in that ounce. I mean, if the paraffin is in a solid form, then it might be in a spoonful, it might be in an ounce.

Q. I mean, how much paraffin would have to be free, say, in a pint of milk?

A. If it is chipped off, if it is a visible quantity, it will not be disseminated through the pint. It will be in
1766 one particular part of the pint.

The Master: Go ahead.

Mr. Schaefer: Q. What are the factors, Doctor, which influence the length of time which living bacteria will survive on paper board?

A. I think the factors are influenced by the manner in which the bacteria are placed on the paper board.

Under ordinary practice, bacteria placed on paper board, in the conversion process, or, at least, where it is manually handled, or where we have contact with humans, or excreta from humans, whether it is hands, droplets, respiratory sneezing and so forth—when we deposit bacteria on paper board that are embedded or enmeshed in saliva or in drops of mucous or in drops of pus from the upper respiratory tract, we are depositing human bacteria, and we are depositing food with the bacteria in the droplets, and it is of such a consistency that it prevents drying. It is a mucous,

pus or serous material and it prevents the desiccation or drying of the bacteria. That is the usual way in which bacteria are deposited. We not only deposit the bacteria, but we deposit the food with it and also the method of preventing desiccation, enmeshed in this tenacious material.

1767 Now, if we place bacteria suspended in water on the surface of cardboard—that is, an artificial experiment—those cellulose fibres or tubes making up the board have a water hunger and they will absorb water rapidly. That is their function, conducting the water by capillary attraction. The board very rapidly absorbs the water. The bacteria die by desiccation on the surface.

Now, if the experiment is so carried out that there are small pieces of board used, say inch square or two-inch square pieces of board used for this artificial inoculation or experiment, then we have a larger edge or raw surface in proportion to the calendered surface, than if we had a piece of board a foot square. It is at the margin, the ends, with loose fibres, where the ends are sticking out, where the rapid absorption takes place. As the board takes up the water, it has such a tremendous water pulling power, as compared with the bacteria, it just dehydrates the bacteria and they disappear very quickly from such a surface. They have no means of protection as they would have if they were inoculated in connection with contagious material, from feces, urine, nose, throat and other sources of human origin.

1768 Q. In your opinion, Doctor, does the use of paper caps for glass bottles present a public health problem which is comparable in significance to the use of paper containers for the distribution of milk?

A. No, I don't think the problem is the same in both at all.

Q. Why, Doctor?

A. I think the paper cap—well, the paper cap is paraffined at a high temperature of about 220 degrees fahrenheit. It is only in contact with the paraffin for a few seconds, not more than three or four or five seconds. The paraffin must be driven into the cap. If it is on the surface, then two caps will stick together as they are put in the tube and the capping machinery in the dairy would not operate, it could not operate if the caps stuck together. So they are what I call dried paraffin. That is, the paraffin is driven in.

Q. Dried paraffin?

A. Dried paraffin. Or, as I say, dried wax, as the commercial men call it. The making of caps is a mechanical operation. They are stamped out of rolls, paraffined in tubes, without being touched. There is little human contact, and there is tremendous rapidity and mass production by the machines.

Then, the cap does not come in contact with the milk in the same way that the container does. It is on top of the bottle, and in filling the bottle it can never be filled to the top. You cannot cap it if you fill it to the top.

So ordinarily, in ordinary practice, the milk does not exert pressure against the cap. It may touch the cap or it may slosh against the cap or under certain temperature conditions it may even come up to the cap and press against the cap, but under any condition we do not have the pressure against the cap that we have exerted in the paraffined paper board container that is in contact with the milk for several hours at a time.

Also, it comes in contact with the underneath surface of the cap, which is a smooth, calendered surface. It is not scored. It is not printed. It is very smooth. It would not be absorptive as some parts of the paper container.

Q. Have you an opinion, Doctor, from the point of view of protection of the public health, with respect to the relative hazard involved in the use of paper cups as containers for liquids, like coffee, Coca Cola and other soft drinks, as compared with the use of paper containers for the distribution of milk?

A. Yes, sir.

Q. What is that opinion, Doctor?

A. I don't think they compare from a public health standpoint.

Q. Why?

A. The use of liquid type containers—that is what they are; they are really liquid type containers—was started early by the health departments to replace the common drinking cup at drinking fountains. That was initiated before we had the constant flowing drinking fountains, and their use in the dispensing of beverages was an outgrowth from their use in replacing the common drinking cup.

The beverages placed in such paper containers only remain in the container a relatively short time. They are not storage containers. The material placed in those containers

does not present the health hazards of bacterial growth that milk presents. That is, they are not growth promoting media.

I think that probably the most important factor is that those containers are not used for food for young infants and young children and therefore present a different 1771 health condition entirely from a public health standpoint.

Q. From the point of view of protection of the public health, have you an opinion as to the relative hazard involved in the use of paper containers for the packaging of ice cream, butter, lard, cottage cheese and other kinds of cheese, oysters and pickles, as compared with the use of paper containers for the delivery of milk?

A. Yes.

Q. What is that opinion, Doctor?

A. I think of the food substances you named, ice cream is the most important one.

We control the ingredients and the sanitary conditions of ice cream by ordinance and the permit system in Chicago, and we insure that the ice cream is made of sanitary products. The ingredients are all under control.

After ice cream is frozen, in a hard state, it is relatively easy to prevent contamination. It is not a growth promoting medium at all. It is too cold.

Our effort is to prevent bacterial contamination where it is a growth promoting medium, that is, before it is frozen. After it is frozen, our method of control is 1772 very simple, because there are very few health hazards connected with ice cream in a frozen state.

Ice cream in a frozen state is solid. When placed in a paper container there is not any liquid bridge; there is not anything there that will convey the substance into the container. The health hazards are not comparable to those in fresh fluid milk, where the container is used for storage.

I think cottage cheese is the same thing. It is produced by the dealer, under permit, and it is a solid.

Now, as to other cheeses, most of the other cheeses that are put into paper containers are solid. They have been seeded with various types of yeast and moulds to produce the particular cheese, and we know that the leaven that they use to make the cheese and the growth of the leaven in the cheese destroys all pathogenic bacteria. It is a solid. It is usually acid in reaction and it presents little health problems on protection from contamination.

Q. What about butter, Doctor?

A. It is difficult to contaminate butter, because of the high fat content. It does not possess a sugar. It possesses little protein and is very high in fats.

Butter is usually wrapped in oiled paper, ordinary parchment varieties of paper, impregnated with oil, and is put into containers of various types in an oil package, but it is mainly the high fat content, the absence of sugar and the minimum amount of protein that protects butter from outside contamination.

We control the quality of the milk that goes into the butter and we know, like in ice cream, that we have a sanitary product up to the time it is formed into a solid state.

Q. What about lard, Doctor?

A. Lard presents no sanitary hazards at all. It is hard to find bacteria that will grow in lard. It is devoid of protein, devoid of sugars, only containing fats, and the decomposition of lard in bacteria is almost a rarity. It is a curiosity.

Q. What about oysters, Doctor?

A. Probably the first single-service paper container produced was produced for oysters. It was produced in Baltimore between 1875 and 1880. It was a paper container, that we are all familiar with. There is practically the same one used now, where the ends are formed by sticking into a slot, and the paper comes flat, and it is built up into a container. That has been used for the longest period of time as a single-service container for food products.

The oysters are usually conveyed from the store or the place of purchase to the home in these containers, and are most frequently put into other containers, at any rate they are heated, cooked, before they are used, as the shucked oyster in the market is always used for cooking purposes, so we heat it anyway.

Now, as to pickles, they are in their own preservative. Probably one of the oldest forms of food preservatives. The development of acid in the form of vinegar has been used since 400 years before Christ, so we have there a vehicle that is self-sterilizing and self-preserving.

Q. Do you know the mortality rate, the infant mortality rate, that is, of infants under the age of one year, for the city of Chicago, for the year 1938

A. I looked that up and made a note of it. I can't remember it.

Q. Do you have the note with you, Doctor?

A. Yes.

Q. You may refer to that.

1775 A. In 1938 the infant death rate per thousand living births was 33.7.

Q. That is in the city of Chicago?

A. That is in the city of Chicago for 1938.

Q. And for 1937, what was that rate in the city of Chicago?

A. The infant death rate per thousand living births was 37.8.

Q. What was the infant death rate in the city of New York for the year 1938?

A. The infant death rate per thousand living births in New York City for 1938 was 38.3.

Q. And in New York for 1937?

A. It was 43.7.

Q. What was the infant death rate in Philadelphia for the year 1938?

A. 42.2.

Q. And for the year 1937?

A. 44.6.

Q. Do you have any opinion, Doctor, as to why cream does not rise to the top of the container when it is put into a paper milk container?

A. No, I don't think I do. The cream rising to the top is a very complex physical chemical problem. It does it all the time and we don't think much about it, but we still
1776 do not understand all the principles involved.

Q. Is Mr. George D. Scott a friend of yours, Doctor?

A. Yes, sir.

Q. Mr. Scott is connected with the Ex-Cell-O Corporation?

A. Yes, sir.

Q. Do you know what his capacity is there?

A. I do not know.

Q. Did you have any conversations with Mr. Scott with respect to the Pure-Pak paper container?

A. Yes, sir.

Q. When did you have those conversations?

A. I think it was the last week in October, in 1938.

Q. Where was that?

A. Mr. Scott phoned me from some place in Chicago to

my office at the University, said he wanted to see me about paper containers. I do not just recall the conversation, but I gathered from him that he wanted to see me about paper containers, that my name had been suggested to him on a recent visit to the Chicago Board of Health.

Q. And as a result of that conversation did you see Mr. Scott?

A. Yes, sir. He came out to the University and saw me in my office there.

Q. What was the substance of your conversation 1777 with him there?

A. As I recall, Mr. Scott was there for about two hours. He went over the history of how the Ex-Cell-O Corporation became interested in making and merchandising a dairy machine and emphasized that he or anyone connected with the Ex-Cell-O Corporation were experienced in dairy work or in public health work.

Q. Were experienced?

Mr. Garipey: Were or were not?

The Witness: A. Were not. He emphasized that there was no one in the organization with that background and experience.

The Master: Q. Who emphasized that?

A. Mr. Scott.

Q. Yes.

A. And he came to me to get me to help him in presenting his material to the Chicago Board of Health. He had a suitcase full of material, probably fifty or sixty pamphlets, articles, some typewritten—

Mr. Schaefer: Q. Did he have that with him at your office?

A. He had that with him. He wanted this material summarized into a tangible, understandable report form.

Q. Was anything said at that meeting about compensation? 1778

A. No, sir.

Q. Did you undertake at that meeting to do any work for Mr. Scott?

A. No, I did not. I told Mr. Scott if he wanted to leave his material with me I would go over it and see what it was all about, see what was in there that I could use, if anything, and for him to see me again or contact me again in about a week.

Q. Did he contact you again in about a week?

A. Yes, sir. About the first week in November.

Q. Where did you see him then?

A. I saw him at the Palmer House.

Q. What was the substance of your conversation then?

A. I told him that I thought that I could get some material out of what he had left me. A great deal of it was more of sales value than any value that I could use it for, but some of it was useful.

I also told him that I would have to have more personal contact, that I would like to see one of the machines, at least, see it in operation, and that I wanted to consult with Dr. Breed and Dr. Sanborn about paper, what progress they had made on the sanitary quality of paper, since 1779 I had seen their last bulletins.

The Master: Q. What was the purpose of your activity in this matter?

A. It was to correlate into a tangible, understandable report a group of isolated writings and reports that Mr. Scott had in his suitcase; that he gave to me at the time.

Q. Were you to state your opinion, too?

A. I told him I would state my opinion if I had one to offer, but I would have to see the machines and make some personal observations before I could state my own opinion.

Mr. Schaefer: Q. You understood, didn't you, Doctor, when he was consulting you that he was interested in securing permission to sell that type of container in the city of Chicago?

A. Yes.

Q. And that it was for that purpose that he consulted you?

A. Yes, sir.

Q. At that time were you a member of the Board of Health of the City of Chicago?

A. No, sir.

Q. Now, have you completed your statement as to the substance of the conversation at the Palmer House 1780 between yourself and Mr. Scott?

A. Well, the conversation, as I mentioned, went to that point. I suggested to him that the report made should be considered as a preliminary report, and that undoubtedly there would be other problems come up in relation to the container, and suggested, just as a tentative outline, that we consider about four months the duration of our contact and I told him a reasonable sum would be a

thousand dollars for the four months' service, which he said was agreeable.

Q. When did you next see Mr. Scott?

A. I next saw Mr. Scott in Geneva, New York, in Dr. Breed's and Dr. Sanborn's laboratory.

Q. What did you do there with him?

A. That was about the middle of November.

Q. Of what year?

A. 1938. I arrived at Geneva—

Q. Are you sure of the year, Doctor?

A. 1937. I beg your pardon. This was all 1937 and not 1938. When I first saw Mr. Scott it was the last week in October, 1937. If I said 1938, I was in error.

Q. What did you do there with him, I asked you?

A. I arrived in Geneva in the morning and Mr. Scott came in about noon. I spent the morning, as well as the afternoon, with Dr. Breed and Dr. Sanborn. I have 1781 known Dr. Breed for twenty years and have known Dr. Sanborn for two or three years.

I went over the results that they had obtained since the publication of their last bulletins and noted the improvement in the sanitary quality of paper board, as they were finding it in their analysis, that was sent to them from various sources. There was a constant improvement since their last report in the sanitary quality of paper board. I was particularly interested in the Cherry River mill board. The last report they had was about two months old or three months old. I suggested that they get a very recent report to see whether it was holding up the same or different. Dr. Sanborn and Mr. Scott left Geneva that night and went to Cherry River and completed the sanitary survey of the mill and the paper board.

Q. What did you do?

A. I came on back to Chicago.

Q. Did you see Mr. Scott again?

A. I saw Mr. Scott in Detroit about a week after that. I went to Detroit for two purposes. One was to see the Pure-Pak machine in operation in a dairy in Detroit. The second thing was to talk to Dr. Vaughn, the health officer of Detroit, whom I have known for a number of years, 1782 relative to paper containers for milk, and his experience with them in Detroit.

I saw the Pure-Pak machine in operation, watched it all one morning. I spent the afternoon with the health department.

Q. Then what did you do, Doctor?

A. I came back to Chicago again. From that material that Mr. Scott had left with me and my observations at Geneva and Detroit, I wrote my report.

Q. And that report is the document which is Plaintiff's Exhibit 4 in this case?

A. Yes, sir.

Q. And what did you do with the report after you had written it, Doctor?

A. After I wrote the report I asked Mr. Scott whether he wanted me to submit it to the Health Department or whether he wanted to do it. He asked me to. I took it down to Mr. Krueger at the Chicago Board of Health.

Q. Thereafter, did you discuss that report with Dr. Bundesen, the president of the Board of Health?

A. Yes, sir.

Q. Where was that?

A. In his office, in the Chicago Board of Health.

Q. What was the substance of the conversation there?

1783 A. Dr. Bundesen was most concerned about the sanitary qualities of the paper board.

Mr. Garipey: That is not responsive to the question. He asked for the conversation, Master. That is his conclusion.

Mr. Schaefer: Q. What did Dr. Bundesen say, in substance, and what did you say, Doctor?

A. Dr. Bundesen asked me if the paper board was sterile. I told him no, it was not sterile, but that I thought it could be made sterile, that it was not sterile at this time.

The next thing he asked me was what were the advantages of the paper container, that is, a single-service container for milk.

I told him I thought it had many advantages, like the advantages in a quarantined home. It was certainly a public health service there, to prevent any possibility of dissemination of contagion. It was of advantage in hospitals, and particularly in the Contagious Disease Hospital, where we had one floor filled with scarlet fever patients and one floor of measles and one floor diphtheria, where, regardless of the best of care we sometimes get cross infection. If we had single-service containers we most probably could eliminate at least the drinking

1784 glass for milk as one of the sources. Also its use in

the General Hospital, where we have to boil every glass, would be an advantage. Those were some of the advantages I pointed out to him.

Q. Doctor, were those the advantages to which you referred when you said in Plaintiff's Exhibit 4: "From my personal investigations and observations I see many advantages to the single-service paraffin-coated milk container for fresh fluid milk."?

A. Yes. That was the paragraph that Dr. Bundesen asked me to explain.

Q. How much time did you spend in connection with the preparation and presentation of this report?

A. With those two, one trip to Geneva and one to Detroit, I would say not more than five or six days, not more than that.

Q. And for your services, how much were you paid by the Ex-Cell-O Company?

A. Two hundred and fifty dollars, and my expenses on these two trips.

Q. Did you ever state in a telephone conversation, or otherwise, to Mr. Scott that you had never taken such a lashing from anybody in your life as you had taken from Dr. Bundesen, because you proceeded with the gathering of this data on behalf of Pure-Pak, without first consulting Dr. Bundesen personally?

A. No, I don't remember saying that.

Q. Now, Doctor, at the time when you prepared Plaintiff's Exhibit 4, what had been your experience with the bacteriology and the sanitation of paper?

A. I had had about nine years experience with the Kimberly-Clark Corporation.

Q. What type of products does the Kimberly-Clark Corporation manufacture?

A. They manufacture a variety of paper products. I was associated with all of their products, but primarily with one product, which is their disposable tissue division, which makes Kleenex, a disposable tissue and also makes a disposable sanitary napkin called Kotex, and similar products of disposable tissue. I have been a consultant of Kimberly-Clark since 1928.

Q. Now, in addition to your experience as a consultant to Kimberly-Clark, what experience had you had with paper at the time you prepared Plaintiff's Exhibit 4?

A. I had had none, except with Kimberly-Clark.

Q. After the presentation of Plaintiff's Exhibit 4,

did you have any experience with the manufacture of paper board for use in paper milk containers?

1786 A. Yes, sir.

Q. Will you describe what that experience was?

A. From June, 1938, up to December, 1938, I was a consultant to the Sealright Company, Fulton, New York, who make paper containers for food and for milk.

Q. Did Sealright pay you for that work?

A. Yes.

Q. Specifically, what did you do as a consultant for the Sealrite Company?

A. The first thing I did was to have them built and equip a bacteriological laboratory.

Q. Where, Doctor?

A. In Fulton, at their plant.

Q. Fulton, New York?

A. Fulton, New York, yes sir. They built and equipped a bacteriological laboratory, employed two bacteriologists to man it, and we began a thorough sanitary survey of everything, from the log pile to the finished container, to determine what kind of a sanitary program we should inaugurate, where our hazards were and what they were. That was my primary purpose.

Q. And how long did you remain there?

A. I remained there until I became a member of the Board of Health. I resigned when I was appointed
1787 to the Board of Health.

Q. Can you tell me some of the things which you did in connection with your work for the Sealrite Corporation, with respect to their sanitary program?

A. Well, I supervised all of the laboratory work and also inaugurated an educational system of personal hygiene in the mill and conversion personnel.

Q. At the time when you said in your report, which is Plaintiff's Exhibit 4, "Cardboard of a satisfactory sanitary quality can be obtained and used for this purpose," meaning the manufacture of single-service containers for milk, upon what experience was that opinion based?

A. When I was talking to Dr. Breed and Dr. Sanborn in Geneva, I noted that some of their disintegration counts of board showed no bacterial growth. That substantiated what I had in mind, and that was producing a sterile board. That idea or that conception was based upon my experience with Kimberly-Clark.

At Kimberly-Clark, we succeeded in producing sterile

disposable tissue. Thousands of samples of Kleenex, a variety of sheets, have been taken over a number of years, and it is always sterile when it comes off the dryer.

1788 I thought it was possible to do the same thing with cardboard, because we accomplished that at Kimberly-Clark by slowing down the sheet going through the dryer or increasing the dryer capacity. We dessicated the sheet. When the sheet comes off, at the Kimberly-Clark Corporation, it contains less than one-half of one per cent water, and it is sterile.

I thought I could do the same thing with paper board, by proceeding along the same general principles, but when I got into the paper board mill I found that I could not do that.

You cannot do it for the reason that the paper board that has less than five per cent water is difficult to convert, that if you score it you crack it, it is so brittle. It requires five per cent water, approximately, to give it the resiliency or give it the bending power necessary for conversion without breaking it, like you would break a stick.

Of course, the same problem comes up in connection with the thin tissues. They cannot be converted when they are taken off the drier with so low a moisture content, but you only have to put them in an air-conditioned room for two or three hours and the thin tissue takes
1789 up moisture to any degree you want to take it up.

But a paper board requires months to attain that degree of moisture content, particularly tight rolls, if you have rolls. So I found the experience I had at Kimberly-Clark I could not transfer to the paper board mill at all.

Q. While you were working at the Sealrite Corporation, did your experience cause you to change your opinion with respect to the possibility of producing a paraffined paper container for milk which was satisfactory from a public health point of view?

A. Yes.

Q. Did you ever express that opinion to anyone?

A. Yes.

Q. To whom?

A. I have expressed to several people, including Mr. Skinner.

Q. Who is Mr. Skinner?

A. The president of the Sealrite Corporation. E. W.

Skinner, the president of the Sealrite Company, Fulton, New York.

Q. Did you ever express that opinion to Mr. Skinner in writing?

A. I think I did, yes, sir. I am sure I did, but most of our—

Mr. Gariepy: I object. He has answered the question. He said he did in writing. That is responsive.

Mr. Schaefer: Q. Did you also express that opinion orally?

A. Yes, repeatedly orally, with quite long discussions.

Q. With anyone other than Mr. Skinner?

A. Yes, sir.

Q. Who were some of the other people to whom you expressed that opinion?

The Master: What opinion is this?

Mr. Schaefer: This is the opinion that a paraffined paper container for milk or for fresh fluid milk cannot be made so it is satisfactory from a public health point of view.

The Witness: A. Yes.. With the vice-president, Mr. Dolphin.

The Master: Q. Vice-president of what concern?

A. Of the Sealrite Company. The chief chemist of the Sealrite Company, Robert Huntley. The chief engineer, Mr. Price.

Q. Was that before you became a member of the Board of Health?

A. Yes, six months before.

Mr. Schaefer: Q. And was that at the time when you were being paid by Sealrite Corporation as a consultant?

A. Yes, sir.

Q. How much were they paying you, Doctor?

A. Five hundred dollars a month.

1791 Mr. Schaefer: Cross-examine.

Mr. Gariepy: If the Master please, we have been exactly three hours on direct examination, and it is going to take a considerable time to cross-examine. May I suggest that we adjourn until Friday? It is impossible for me to go ahead today and do justice to the cross-examination on behalf of my client. I believe this is the first time we have asked for any delay in the examination of any witness.

The Master: Have you any objection to that, Mr. Schaefer?

Mr. Schaefer: Well, I am very anxious to proceed. We are sitting here for three days. I want to conclude the case as soon as possible.

The Master: Is this your last witness?

Mr. Schaefer: I think so, yes, sir.

Mr. Gariepy: If counsel is objecting, I suggest he put on his other witness and proceed, and I might be able to cross-examine him this afternoon, if he wants to go ahead, but I want to reserve my cross-examination of this Doctor until Friday.

The Master: Do you have some other things you want to put in, Mr. Schaefer?

Mr. Schaefer: I have some other things that I want to take up with you, yes, sir. As to other witnesses, 1792 I think not. It depends on the cross-examination of Dr. Arnold.

The Master: Well, as I recall it, you made a similar request before.

Mr. Schaefer: That is right, yes, sir.

The Master: In regard to some other witness they put on.

Mr. Schaefer: I recall a long speech too, at the time, unless my recollection fails me, a rather vehement protest.

The Master: Well, of course, the decision was made at that time and I suppose the same decision will apply to this. Suppose we give them until Friday morning at 9:30.

Mr. Schaefer: All right, sir.

Whereupon the further hearing of the above entitled cause was adjourned to 9:30 o'clock a. m. of the following day, Friday, October 13, 1939.

1793

• • (Caption—) • •

Friday, October 13, 1939,
9:30 o'clock a. m.

• Met, pursuant to adjournment.
Present:

Mr. Gariepy, Mr. Rall, Mr. Schaefer, Mr. Horan.

1794 The Master: You may proceed with your cross-examination, Mr. Gariepy.

LLOYD ARNOLD a witness called by the defendants, having been heretofore duly sworn, resumed the stand and testified further as follows:

Cross-Examination by Mr. Gariepy.

Q. • Dr. Arnold, you have attended all of the hearings we have held before Master Grossman, since the filing of this suit on February 2nd, have you not?

A. I believe I have.

Q. Did you attend with Mr. Schaefer the taking of the depositions in April, 1939, at Philadelphia and New York City?

A. Yes, sir.

Q. Why did you attend said hearings here and the depositions in the two places?

A. I considered myself a defendant in the case and I was interested in it and I was concerned about it.

Q. Were there any other members of the Board of Health in attendance at the hearing before the Master and the Commissioner on the taking of depositions, up to date?

A. Not that I know of.

1795 Q. Did I understand you to say that you now receive \$500 a month salary in the dairy division or as consultant to the Board of Health, which is it?

A. I don't know exactly how it would be defined. I started out as consultant—as the responsible head of the dairy division, at the time Mr. Krueger and Mr. Guerin took their leaves of absence. Then when I returned I was asked to continue in relation to the modification and reorganization of the new proposed milk ordinance.

Q. And are you still received \$500 a month at this time?

A. Yes, sir.

Q. And that covers, of course, services attending in the hearings here and services on the depositions?

A. I presume so.

The Master: Q. What is your salary as a member of the Board of Health?

A. Nothing, sir.

Mr. Gariepy: Q. Were your expenses in taking the depositions or at the time you attended the taking of the depositions paid by the Board of Health or were they paid by you out of your salary?

A. No, they were paid by the Board of Health.

Q. You said on direct that you did considerable 1796 research work, Doctor.

A. Yes.

Q. Have you done and do you now do research work for Proctor & Gamble Company?

A. No, sir.

Q. Do you do research for the Brassert Company on Michigan Avenue?

A. No, sir.

Q. Have you ever done any research work for them?

A. For Brassert?

Q. Yes.

A. No.

Q. Have you done it for Proctor & Gamble?

A. Yes.

Q. Did you do it through the Brassert Company's office on Michigan Avenue?

A. No. The contact was made through the office, but I did not have—

Q. Through Brassert's office?

A. Yes.

Q. And who in Brassert's office?

A. Mr. Woir.

Q. That was in connection with some soap, was it not?

A. Yes, sir.

Q. That is in the Straus Building?

A. Yes.

Q. What was your return, in the way of financial return, from the work you did for Proctor & Gamble, and when was it?

Mr. Schaefer: That is objected to.

1108 *Transcript of Testimony Before Master.*

1797 The Master: Objection sustained.

Mr. Gariepy: Q. Are you doing any work for them now?

A. No, sir.

Q. Did you do some research work or outside work, as you call it, for the Associated Milk Dealers, Inc.?

A. Yes.

Q. When?

A. I think that began in December, 1937, or January, 1938, and lasted about a year, or maybe 15 months.

Q. Who financed that research work?

A. The Associated Milk Dealers of Chicago.

Q. Was that a grant to the University of Illinois?

A. To the University, yes.

Q. Is that a similar type of a grant or a deposit of funds as is made at Cornell University that you heard testified to by Dr. Sanborn here?

A. I presume it is, yes.

Q. How much of this 20 per cent time that you say is allowed to you by your contract with the University have you expended in attending the hearings here in this case?

Mr. Schaefer: That is objected to.

The Master: I will let him answer.

1798 The Witness: A. I could not say. I have not kept any track of it.

Mr. Gariepy: Q. You say you have a contract with the University for 80 per cent of your time to the University and 20 per cent outside?

A. Yes.

Q. Is that in the form of a written contract?

A. Yes.

Q. Did you receive notification from Dean Davis—he is your dean, isn't he?

A. Yes.

Q. (Continuing) —on December 2, 1938, concerning the devoting of time to the University work and calling your attention to your time on the outside of 20 per cent?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Did you ever have any communication with Dean Davis with regard to your using time that you were supposed to use at the University, for outside work?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Have you been assigned by the Board

of Health of the City of Chicago to assist Mr. Schaefer in the defense of this lawsuit?

1799 A. I think I have. That is my understanding.

Q. By whom were you assigned?

A. By the president of the Board of Health and by the Board, too, I think. That was my understanding.

Q. Was there a formal resolution passed or letter given to you?

A. I do not recall anything formal about it.

Q. Has anyone been assigned by the Board of Health to assist you in the defense of this lawsuit?

A. Not that I know of.

Q. What have you done to assist counsel for the defense here, besides attending the hearings in this cause?

Mr. Schaefer: That is objected to.

The Master: I think he may answer.

The Witness: A. Why, I have consulted with him whenever it was necessary or whenever I was requested to.

Mr. Gariepy: Q. That was frequently during the hearings and in recesses?

A. Yes, sir.

Q. Is it not a fact that you prepared a list of questions that were asked you yesterday?

A. No.

Q. Did you aid in the preparation of that list?

A. No.

1800 Q. Did you prepare a list of questions that were asked witnesses for the plaintiff on cross-examination?

A. I consulted with Mr. Schaefer in their preparation.

Q. How many various commercial concerns are you doing research work for at this time, drawing on this 20 per cent schedule that you have?

Mr. Schaefer: That is objected to.

The Master: Oh, I will let him answer.

The Witness: One.

Mr. Gariepy: Q. Who is that?

A. Kimberly-Clark.

Q. Are you doing any work for the Sealrite Company at this time?

A. No, sir.

Q. Do you work for the United Fruit Company?

A. No, sir.

Q. Have you done work for them, research work?

A. Yes.

Q. How about the Laundry Institute, near Joliet? Do you do research work for them?

A. No.

Q. Have you done it?

A. Yes, sir.

Q. Are you connected with the State Department of Health, the Chicago branch, at this time?

A. No, sir.

Q. I understood you yesterday to say that you were appointed on the Advisory Board for the State Department of Health concerning the rules and regulations for public health, is that right?

A. No, sir. That is a committee.

Q. On that committee?

A. That each director appoints to revise and bring the rules up to date.

Q. Does this compensation that you receive for research work go through the University or is it paid direct to you?

A. Paid direct to me.

Q. What is your salary, as bacteriologist and professor of public health at the University of Illinois?

A. I think it is \$5,280, something in that neighborhood.

Q. Is it not \$5,140?

A. That may be it.

Q. And how much work have you done or how much money do you receive or have you received during the past year for research work you have done on the outside?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. What date did you take over responsibility for the dairy division of the Board of Health of the city?

A. In December, sometime. I don't remember the date.

The Master: Q. What year?

A. 1938.

1802 Mr. Gariepy: Q. Are Dr. White, Mr. Martinek and Mr. Rudig working under your direction in the Board of Health in regard to the single-service container?

A. No, sir.

Q. Under whose direction are they working, if you know?

A. I think they are working under Dr. White's direction.

Q. Do you know at whose suggestion the various tests

or experiments performed by Mr. Martinek and Mr. Rudig were made in 1939?

A. I don't know specifically at whose suggestion it was done.

Q. Did I understand you correctly on direct examination to say that you spent each afternoon with the dairy inspectors?

A. No. In the Board of Health, when I was in charge of or responsible for the dairy division, I was there every afternoon.

Q. Are you still responsible for it?

A. No, sir.

Q. Do the inspectors report to you now every day?

A. No, sir.

Q. Or every other day?

A. No, sir.

Q. They do not?

A. No, sir.

1803 Q. What revisions of the proposed Mayor Kelly milk ordinance and various parts of it are proposed to conform to the United States Public Health Service?

Mr. Schaefer: That is objected to.

The Master: I will sustain the objection.

Mr. Gariepy: Q. You said that there were going to be proposals affecting the Mayor Kelly milk ordinance, is that right, on direct examination?

A. There were going to be proposals?

Q. Proposals for the revision of the Mayor Kelly milk ordinance.

A. I am working on various forms of revision. It is purely in tentative form. There are two or three different forms for each paragraph, or something of that nature. It is just tentative.

Q. What revisions are in contemplation?

Mr. Schaefer: That is objected to.

The Master: What is the materiality of that?

Mr. Gariepy: Q. By you. What revisions do you contemplate making in the Mayor Kelly milk ordinance?

Mr. Schaefer: That is objected to.

The Witness: A. I don't know at the present time.

The Master: He doesn't know at the present time.

Mr. Schaefer: Sir?

1804 The Master: He doesn't know at the present time, he said.

Mr. Gariepy: Q. In what respect does the Mayor Kelly

milk ordinance now not conform to the United States Public Health Service standards or suggestions?

Mr. Schaefer: That is objected to.

The Master: I will let him answer.

Mr. Schaefer: It doesn't make any difference whether they conform or don't conform.

Mr. Gariepy: You opened the door on it, Mr. Schaefer.

The Master: I will let him answer.

The Witness: A. That is a great deal. To answer that one would have to take the ordinance page by page, in order to answer that question.

Mr. Gariepy: Q. You cannot answer it?

A. No, I cannot answer the question.

Q. When were these contemplated revisions decided upon?

The Master: He has answered that he doesn't know what the revisions are going to be.

Mr. Gariepy: Q. When did you start on these proposed revisions, then? You said you started on tentative proposed revisions.

1805 A. I started on them last December.

Q. 1938?

A. Yes, sir.

Q. You said that more than 50 per cent of fresh fluid milk was taken or drunk by children under 12 years of age. What per cent is consumed by children under 1 year of age?

A. That I don't believe I could answer.

Q. Your figures on comparative death rates were for children one year old, weren't they?

A. They were children who had not reached their first birthday.

Q. Do you have any slightest reason, inference or suspicion to believe that any part of the Philadelphia or New York death rate was due to the sale of milk in single-service containers in said cities?

A. I have no evidence.

Q. Why did you quote those figures on direct examination concerning the death rates in those two cities then, Doctor?

Mr. Schaefer: It is obvious; the question was asked.

The Master: Objection sustained.

Mr. Gariepy: Q. What relation has those figures, Doctor, to the matter of the milk control or the sale of milk in single-service containers, if any?

Mr. Schaefer: That is objected to.

1806 The Master: Objection sustained.

Mr. Gariepy: Q. Do you consider that these figures with regard to the death rates have any relationship to the sale of milk in those cities, in single-service containers, as compared with the sale of milk in the city of Chicago in glass containers?

A. I don't know.

Q. Is not evaporated milk used in the feeding of babies in at least 50 per cent of the cases?

A. I could not answer that.

Q. Is not the fluid milk used in the care of babies sterilized before being used?

A. It depends upon the formula the mother is using. It is sometimes boiled and sometimes not.

Q. What is the customary thing in the feeding of babies, Doctor, under one year of age?

A. It depends upon the pediatrician. Some of them do boil it and some do not.

Q. What is your experience and knowledge with regard to what per cent boil the milk before they give it to the baby and what per cent give it to them cold and raw?

A. They warm it up. I don't know whether they all boil it or not. I am not familiar with that,

1807 Q. You are not a pediatrician then, Doctor, are you?

A. No, sir.

Q. Do you know the death rate for the years 1937 and 1938 for the city of San Francisco?

A. No, sir.

Q. The city of Los Angeles?

A. No.

Q. Do you know whether or not the city of San Francisco permitted the use of single-service containers during the past year, 1938?

A. I do not know.

Q. I ask you the same question with regard to the city of Los Angeles.

A. I do not know, no, sir.

Q. Do you have any figures or statistics from the Bureau of Vital Statistics of any city with regard to a showing that the death rate in cities using the single-service containers is brought about by reason of its use?

A. I know of no such information available.

Q. Can you recite one instance, Doctor, of an infant's death or an increase in deaths attributable to the use of milk or the sale of milk in single-service containers?

A. I have no such published reports.

Q. The single-service container has been in use 1808 in some cities for at least ten years, has it not?

A. I don't know. I could not answer that question.

Q. How long do you know the single-service container has been used, for instance, in New York City?

A. I don't know when they began?

Q. Do you know in Philadelphia?

A. No, sir.

Q. Do you know how many cities are using the single-service container at this time?

A. No, I do not.

Q. Do you know of a single instance, of your own knowledge, or from your contact with public health officials, or from reading medical journals and publications on public health, of any kind, of any instance, where disease or death or cholera or epidemic was attributable or suspected to be caused by the use of single-service containers?

A. No, I do not.

Q. You do know that there were instances of the communication of disease suspected to arise from the handling and reuse of glass milk bottles, don't you?

A. It has been suspected, yes.

Q. In your professional career, have you ever seen glass milk bottles used for the containing of foreign substances, such as turpentine, varnish or human excreta, such as urine and feces?

A. Yes.

Q. Do you consider the bacteriological control of glass milk bottles perfect?

A. No.

Q. You try to prevent glass milk bottles being returned from quarantined residences because of a recognition that the bottling and washing techniques do not always result in sterility, do you not?

A. No, sir.

Q. What do you do?

A. We do not allow the bottles to be returned until the quarantine has been discontinued.

Q. For what reason?

A. Then those bottles are all handled separately. Our main reason for that is that we do not want a bottle that may have disease producing germs on it handled by people who are going to handle other bottles. It is not the difficulty of cleaning the bottle. It is the difficulty of cross contamination before the bottle is cleaned.

Q. Then the glass milk bottle is a source of contamination, is it not?

A. Anything is a source of contamination.

Q. Is this one of the reasons that you enumerated or mentioned yesterday, as advantages in the use of 1810 single-service containers, that were mentioned by you in your conference with Dr. Bundesen on or about December 4, 1937?

A. Yes, sir.

Q. Then in that respect the single-service container promotes public health and protects it, doesn't it?

A. Yes, sir.

Q. Where the glass bottle does not do so?

A. It certainly does, yes.

The Master: Q. Is that the public health of the consumers of milk or is it the public health of the washers of the bottles or other handlers of the bottles before they are washed; which do you mean, or do you mean both?

A. What I mean, Master, is that it will assist us in restricting the distribution of the causative agents of the communicable diseases which we quarantine. If we can use single-service containers, it will help us to localize the contagious material and will prevent the possibility of spread.

Q. Spread to whom?

A. To other people, the population.

Q. That is, the users of milk in bottles?

A. The users of milk in bottles. It will prevent contamination of the milk supply and will prevent the 1811 drivers from contaminating door knobs as they go in and out. If they pick up a bottle from a quarantined premises and take a hold of the door handle next door, they might contaminate it.

Q. Or they might contaminate the bottle that they are going to put on the door step next door?

A. Yes, sir.

Mr. Gariepy: Q. And this reuse and constant passage of this bottle is what you call this cross contamination, is it?

A. The dirty bottle, yes, the ones that have not been cleaned.

The Master: Q. I want to get this straight now.

A. Yes, sir.

Q. Do you include in your contamination possibilities, the use of that identical bottle after it has been washed?

A. No, sir.

Q. In other words, if a bottle has been used on quarantined premises and is taken in by a milk driver and then washed in the ordinary course or ordinary routine, do you think that that bottle has any disease spreading possibilities?

A. No, sir.

1812 Q. Do you confine your disease spreading possibilities to the driver, then?

A. No. To the bottle before it is washed. The danger is between the quarantined premises and the washing machine.

Q. And everybody that handles it up to that time?

A. Yes, sir.

Mr. Gariepy: Q. You give these bottles from quarantined places a special treatment, do you not?

A. Yes, sir.

Q. And why do you give them special treatment?

A. Because we want to be doubly cautious.

Q. Then ordinary treatment is not sufficient caution?

A. It is sufficient caution, but we want a double caution when we know we are dealing with contaminated material.

Q. What importance, in determining the public health hazard or public health advantage of the paper bottle, have you given to the fact that it is used only once and then destroyed?

A. I didn't understand that.

Mr. Gariepy: Read it.

(Mr. Gariepy's question was read by the reporter as above recorded.)

1813 Mr. Gariepy: Q. Is that of public health significance?

A. Yes.

Q. Does not this advantage of the single-service container outweigh, from the standpoint of possible public health hazard, assuming, of course, the use of disintegration tests on the paper board from time to time by the best technique that you know, the bare possibility that in some instances the disintegration tests might not be entirely accurate?

Mr. Schaefer: Will you read that, Mr. Reporter? I didn't get it.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. No, I don't think so.

Mr. Gariepy: Q. Is it not more likely that the glass milk bottles which are used many, many times, are more likely to be subject to contamination by human bacteria, which you described as the dangerous type, than the single-service container?

A. I don't think so, sir.

Q. Do you know that numerous cities and municipalities have provisions and restrictions in their ordinances with regard to the type of containers of milk being used or sent to homes where contagious disease exists?

1814 A. Yes.

Q. And for what purpose do you think that is in there?

A. For the purpose of restricting the distribution of the causative agent of the disease. The single-service container is of advantage there.

Q. In determining the relative health hazard in the use of the glass bottle as compared with the single-service container of the Pure-Pak type, what weight have you given to the fact that the containers are exposed to contamination during the filling operation, referring to the paper container, for only a fraction of the time that the glass bottle is exposed to the filling operation?

A. I don't see where the health hazard of a filling operation comes in.

Q. Is not the exposure of the container to bacteria in the air a period of time an element to be considered concerning the sanitary assets of each container?

A. Yes, but the filling time is short.

Q. And isn't there bacteria in the air all during that time?

A. There are some bacteria in the air all the time, yes.

1815 Q. And that bacteria may settle upon the container?

A. It is possible.

Q. On the bottle?

A. It is possible, yes.

Q. And how much time, do you know, is the Pure-Pak container exposed to the air or contamination from the air during the filling process, how many seconds?

A. I do not know.

Q. How about the glass bottle; how much time is it exposed to contamination from the air?

A. That depends upon the speed of the filling machine.

Q. What is the usual, customary speed of a filling machine, Doctor?

A. From 90 a minute to 140 a minute.

Q. Is it not a fact that the glass bottles opened in the room are exposed for a much longer period of time after their last process of sterilization until they are filled, sterilized and capped again, than is the Pure-Pak milk bottle?

A. I don't know.

Q. That is a health hazard, is it not?

A. No, I don't think so. I would not call it that?

Q. Is it not a health problem?

A. With due care it can be controlled.

Q. Is it not a health problem, I am asking you?

1816 A. No.

Q. Is it not a fact that during the Pure-Pak operation on the Ex-Cell-O machine the paper container is almost continually enclosed in a covered machine, so it is not exposed to human contamination for more than a fraction of the time that a glass milk bottle is exposed in the typical glass bottle operation, in filling?

A. I think so, yes.

Q. Why is not the power to test cartons after they come to the dairy as adequate a method of bacteriological control as is testing 1400 glass milk bottles out of hundreds of millions used yearly in the city of Chicago?

A. I don't get that question.

Mr. Gariepy: Read it, Mr. Reporter.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. No. I do not think a glass milk bottle—well, the rinse test we carry out is only part of our general inspection system. We do not rely upon that entirely. The milk is under our control from the cow to the consumer and the glass bottle is just the consumer's package. On the disintegration tests, I don't believe we could get the information from that, because we would not know the source of the paper, we would not know whether it came from the same place or different places or anything about it.

Q. You have the same inspection of the dairies and the cows and the equipment in the paper bottle factory or paper bottle dairy that dispenses milk in paper bottles that you have in one that dispenses it in glass, don't you?

A. From the dairy standpoint, but not from the container.

Q. You check the cows and the cleanliness of the stalls and everything else?

A. Yes.

Q. Just as Mr. Woodman from Evanston said?

A. Yes.

Q. There are not any different methods that were employed, is there?

A. No, not in the dairy part.

Q. Has the Board of Health of the city of Chicago made comparable bacteria counts on milk in glass containers and milk in paper containers from the same dairies?

A. I don't think so, no.

Q. Is not the object of milk sanitary regulations to deliver uncontaminated and as nearly as possible bacteria-free milk to the ultimate consumer as is reasonably possible, considering the necessities of the practical operation and of the practical milk sanitary regulations?

A. I think so.

Q. In other words, the proof of the pudding is in the eating?

A. No, I wouldn't say that.

Q. But you did not make any comparative tests on this milk, then, in the glass containers, as compared with the milk in the paper containers at the same dairies, did you?

A. No. I don't know a dairy that has the two operations in it.

Q. Do you know the Bowman Dairy?

A. Yes.

Q. Do you know the Borden Dairy?

A. Yes.

Q. Do you know that they are selling milk in glass containers as well as in paper containers?

A. I didn't know it was at the same plant. I didn't know the same vat of milk would empty into two lines, one going into the paper filling machine and one into the glass filling machine, and that is the only way you can compare the two, is to fill them from the same vat.

Q. The dairy, then, would have a substantially different quality of milk in one vat from the other, so you could not make a comparable test, is that it?

1819 A. You could not make a comparable test.

Q. Or reliable test?

A. Reliable for that vat, yes, but not comparable to another vat of milk.

Q. Do you have any authorities or statistics that the bacteria count in milk in paper containers is higher than the bacteria count in milk sold in glass containers?

A. No, I don't think so.

Q. Did you ever advise the Board of Health to make those comparable tests on milk in the two containers at the same dairy?

A. I don't think so.

Q. You would remember whether you ever gave them such advice or suggestion, wouldn't you?

A. I think so, yes.

Q. Mr. Martinek testified here that the paper containers which he received were first sent to the bacteriologist and emptied of milk. What, if anything, did you instruct the bacteriologist to do with the milk?

A. Nothing that I know of.

Q. Why should the filled paper container have gone to the bacteriologist to be emptied, if only tests were to be made on the paper board?

1820 A. I do not know.

Q. Your disapproval, as you expressed it yesterday on direct examination, of the paper milk container at this time is based entirely on your statement that essentially sterile milk container board cannot be manufactured, is that correct?

A. No, that is not the total answer.

Q. Well, can it be manufactured?

A. I don't think so, consistently.

Q. And the reason you say that it cannot be manufactured, that is, sterile board for paper containers cannot be manufactured consistently, is that it must contain five per cent of water in order to take the scoring, is that it?

A. No, that is not exactly it. At least, that was not just what I meant.

Q. Then tell us why that five per cent item of water enters into the paper board? You said it was necessary for scoring.

A. It is. It has to be that for scoring, and if you put it over the dryer system long enough to get the maximum killing effect of bacteria, you do not have much water left in the board.

Q. You got a sterile product for Kimberly-Clark, 1821 that they use for Kotex?

A. Yes.

Q. And that was creased and everything else, was it not?

A. Yes.

Q. After your employment by the Ex-Cell-O Corporation, to which you referred, was terminated, did you advise Dr. Herman Bundesen that you believed the research then reported did not establish that the use of paper containers for milk might safely be authorized by public health officials?

Mr. Schaefer: Will you read that question, please?

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. I don't understand the question yet.

Mr. Gariepy: Q. After you took Exhibit No. 4, in December, 1937, in to Dr. Bundesen, did you, subsequent to that date and the date of making that report, advise him that single-service containers for milk might not be authorized safely by public health officials or by the city of Chicago?

A. Yes, I think I did.

Q. When?

A. I think that was May, the last of April or in May of that year.

Q. Was that a written report or verbal?

1822 A. I don't recall which it was. I know I told him about it and I may have written it.

Q. And when did this Sealrite employment start? This was in May that you advised Dr. Bundesen?

A. This was in June.

Q. June, the next month?

A. Yes.

Q. Then it is not a fact, as you testified yesterday, that your experience with Sealrite from June to December, 1938, gave you this experience and this information on which you based your opinion?

A. Yes, I think that is right. I did not know that the paper container was absorbent at the time I made this report to Mr. Scott. I thought it was only when the paraffin chipped off and there was a bare spot left, that the container was absorbent. It was not until subsequently, during March and April, that I investigated the paper containers and found all of them to show the same type of absorption.

Q. Then it was not your experience with Sealrite that caused you to give Dr. Bundesen that advice?

A. I gave him that advice before I was with Sealrite.

Q. That is in May, 1938?

A. Because of the absorption, yes.

Q. That is in May, 1938?

A. Yes.

1823 Q. The absorption element was the sole element on which you based your conclusion and your recommendation to him that the container could not be made safe for the delivery of milk, is that it?

A. The absorption was a disturbing factor to me, and I reported that to him as such.

Q. Besides being a disturbing factor, did it prevent the container from being safe for the use of fresh fluid milk?

A. I think so, yes.

Q. Did you ever measure the amount of the absorption, Doctor?

A. Why, I weighed some, but I have not measured it very accurately, no.

Q. You heard Dr. Prucha testify here that he measured the absorption and he found four drops in a quart, did you?

A. I heard him testify, yes.

Q. Do you believe he was honest in that testimony?

Mr. Schaefer: The witness had not finished his prior answer.

Mr. Gariepy: Hadn't you finished, Doctor? I want you to finish.

Mr. Schaefer: With respect to Dr. Prucha's testimony.

The Witness: A. Yes, that was the smallest 1824 amount he found.

Mr. Gariepy: Q. Did you hear him testify that he found any larger amount than four drops?

A. Yes.

Q. And how much larger amount did he say?

A. As I recall, up to four cc.

Q. How many drops is that?

A. Four times fifteen.

Q. Sixty drops?

A. Yes.

Q. And that presents a health problem?

A. Yes.

Q. If there is no bacteria in the paper board and there are four to sixty drops of absorption in the paper board, how does a health problem arise?

A. It is seldom that the board is sterile, and if the board is not sterile—

Q. Is a glass bottle sterile?

The Master: Let him finish his statement here. Go ahead, Doctor.

The Witness: A. (Continuing.) —and if the board contains bacteria, they will get into the milk, and then if the board is sterile, it contains plenty of dead bacteria that have been enmeshed in the fibres during the paper making process. Those dead bacteria can be dissolved into the milk.

Mr. Gariepy: Q. Are they spore forming?

1825 The Master: Q. Is there a health problem there?

A. I think there is, yes.

Q. Why?

A. According to the number of bacteria that are there. It is a type of vaccine. They are not growing bacteria, they are not living bacteria, but they are dead bodies of bacteria.

Mr. Gariepy: Q. How much bacteria is contained in a quart of milk, Doctor, dead bacteria?

The Master: That is a pretty general question, is it not?

Mr. Gariepy: Yes.

Q. How much, Doctor?

A. I don't know. I could not say that.

Q. And what is the purpose of pasteurization, if it is not to kill this dead bacteria further, make it more dormant?

A. That is what it is.

Q. That is what it is, Doctor?

A. Yes.

Q. Are they living bacteria or are they dead bacteria in a quart of milk, Doctor?

A. There are both.

Q. And pasteurization gets rid of them, doesn't it?

A. Gets rid of them. Not all of them.

Q. And you don't know how much bacteria there are in a quart of milk, do you?

1826 A. No.

Q. Now, if the paper board happens to be sterile, as you say it is at times, there wouldn't be any public health hazards or danger by reason of this absorption, as you say?

A. Yes, I think there would be.

Q. If the paper board is sterile and it takes in a few drops of milk, and there is nothing in the board that can contaminate the milk, where does the public health problem arise?

A. There will be a good many bodies of dead bacteria, which will be resin, which will be alum, which will be the sizing materials that are in the paper.

Q. Aren't there literally thousands of bacteria in milk after the pasteurization process? Do you know that?

A. Yes. There are 200—yes.

Q. And that is, pasteurized milk that has been approved, say, by the city of Chicago?

A. Yes.

Q. Is anybody injured by reason of drinking milk with that bacteria in it, after the pasteurization?

A. No. It is a different type of bacteria.

Q. What type of bacteria is it in this paper board that you say may be found from time to time, that is so harmful and presents this health problem, even when 1827 dead?

A. There are soil bacteria that are growing in the soil and form part of our biological cycle of nature by decomposition of the organic manner.

Q. What are the kind of bacteria in milk that are killed, Doctor, by pasteurization?

A. They usually come from the udder of the cow. They are a type of what we call milk bacteria, what the milk sanitation calls his milk flora.

Q. You don't call that soil bacteria?

A. They are not the same type of bacteria we find in paper.

Q. Is there any difference in their effect?

A. Yes.

Q. Explain elaborately, Doctor.

A. Those bacteria in the soil differ from those in the milk, in that the soil bacteria are primarily decomposing types of bacteria. Those present in the milk are primarily those that act on sugars. They are the milk souring group, primarily.

Q. When they are dead, Doctor, what difference does it make?

A. It is the protein content that makes the difference.

Q. Is there any acid in milk?

1828 A. There is no acid in fresh fluid milk just as it comes from the cow.

The Master: Q. What effect do these dead bodies of flora or cow bacteria have upon the milk?

A. Nothing. They are the fermenting types, usually, that sour the milk. The fermenting types, not the decomposing types that break down protein material.

Q. That is, the dead bodies have a souring effect on the milk?

A. No, sir. Only living ones.

Q. I am talking about the dead ones.

A. The dead ones are practically harmless, of that lactic acid souring group.

Q. They are what?

A. They are practically harmless.

Mr. Schaefer: You are talking about the bacteria in paper and the Doctor is talking about it in the milk.

The Master: No, I am talking about the bacteria that comes from the cow, that have been killed by the pasteurization process.

Q. You say that some of them are in the milk?

A. Yes.

Q. And I am asking what effect do those dead bodies of cow bacteria have upon the milk?

1829 A. I don't think they have any effect. They are present in buttermilk, naturally sour milk of all

kinds. These bacteria produce the acid from the sugar, and when the acid gets concentrated enough it kills them off.

Q. You say by pasteurization some of these cow bacteria are killed?

A. Yes.

Q. They remain in the milk?

A. Yes.

Q. Those are the dead bodies?

A. Yes.

Q. Do these dead bodies have any effect at all upon the milk?

A. I don't think they do, if they are in a reasonable number, but certainly a high bacterial count would have, and then to pasteurize the milk with a high bacterial count, well, it is not wholesome milk.

Q. Now, let us take a point further, Doctor. If those same dead bacteria are absorbed into the walls of the paper container and sort of flow back and forth between the inside of the wall and the milk, do those bacteria have any effect upon the milk, those dead bacteria?

A. You would not have the same type. It would not be the milk souring group.

Q. It is the same bacteria. You said the milk is 1830 absorbed to some extent?

A. Yes.

Q. You say the milk would be to a reasonable extent germ-free. Now, all that the milk would have would be dead bodies that came from the cow?

A. Yes.

Q. Now, if the walls of the paper container absorbs milk, they therefore absorb only the dead bacteria and such live bacteria as may still be in the milk?

A. Yes.

Q. What effect upon the milk do these dead bacteria or even these live bacteria have, when they go into the walls of the paper container and come back into the milk?

A. I think they will alter the milk.

Q. Any more than if they do not go into the walls of the paper container?

A. Yes.

Q. Why? That is what I am getting at.

A. If it goes into the wall of the paper container, you are adding something to the milk and you are adding a

variety of bacteria, whether living or dead, that is foreign to the milk.

Q. You mean you are going to bring into the milk bacteria that were not in the milk originally, but were in the walls of the container?

1831 A. Yes, sir.

Q. Dead bacteria or live bacteria?

A. Yes, sir.

Q. Have you any idea what the effect would be of those dead bacteria that were found originally in the walls of the paper container, rather than in the milk?

A. I would expect them to be more toxic. I would expect the proteins to be more foreign and they would be the more irritating of the bacteria, in the wall of the container, and there is a large number of them.

Q. That is, the dead bodies of those bacteria would be more harmful than the dead bodies of the bacteria which originally were in the milk?

A. I think they would, yes.

Q. Is there any reason for that?

A. Simply the matter of the complex protein and the matter of their being so foreign, so little experience with them, and there are so many of them. They are a protein decomposing group of bacteria and I think they would be much more toxic than the flora ordinarily present in milk.

Q. Even though dead?

A. Yes, sir.

Mr. Garipey: Q. Doctor, do not the acid forming bacteria of milk restrain the growth of soil bacteria in the paper?

1832 A. No.

Q. Is there an acid forming bacteria in the milk?

A. Yes.

Q. Do you know what the United States Public Health Service standard is with regard to the number of bacteria allowed per quart?

A. I know it is 30,000 per cc.

Q. And that is permissible as milk that does not present any health problem?

A. Yes.

Mr. Schaefer: That is pasteurized milk?

The Witness: That is pasteurized milk, yes.

Mr. Garipey: Q. And are those live ones or not?

A. Yes.

Q. They are live bacteria?

A. Yes.

Q. Thirty thousand?

A. Yes.

Q. Three hundred thousand per quart and thirty thousand per centimeter, that is right, is it not, Doctor?

A. Approximately that, yes, sir.

Q. I think the computation was in error. That would be three million per quart, wouldn't it, Doctor, rather than three hundred thousand?

A. Well, it is not quite a thousand, but we usually consider a thousand cc to the quart. It is not quite a thousand, but whatever the computation would come to.

1833 Q. What is the business of this Sealrite Corporation that you did work for from June, 1938, to December?

A. They manufacture paper containers for food and milk products.

Q. Did you ever approve of the paper container that they manufacture for food and milk products?

A. No, sir.

Q. What was your work for them?

A. My work was of a sanitary nature, starting with the raw material and going through the mill, and the conversion plant, increasing the sanitary safety, and instructing and outlining programs for personal hygiene of the employees.

Q. Did you have anything to do with the matter of the making of the paper board for caps and the technique employed in manufacturing those caps?

A. I have observed it there, yes.

Q. ~~Is not the Sealrite Corporation~~ the largest manufacturer of paper board caps for glass milk bottles in the world?

A. I could not say that.

Q. Did you ever inspect their making of paper board for milk bottle caps, at the Sealrite Corporation?

A. Oh, yes.

Q. Had you ever visited a paper mill manufacturing fibre board for paper milk bottles at any time before 1834 December 4, 1937, other than Kimberly-Clark mills, manufacturing these cellulose products that you testified about?

A. No, sir.

Q. You knew Dr. Breed and Dr. Sanborn, you testified

yesterday, the former twenty years and the latter three years?

A. Yes.

Q. Are they competent, efficient men in the research field with regard to paper products and bacteria?

A. Yes.

Q. Did you so consider them when you went there in November, 1937?

A. Yes, sir.

Q. To secure data with regard to making a report to Dr. Herman Bundesen?

A. Yes.

Q. Do you consider those men honest in their research work?

A. Yes.

Q. You included your summaries of their reports of research work in Plaintiff's Exhibit No. 4 here that you handed in?

A. Yes.

Q. Had you any reason to suspect that their figures, concerning the bacteria count on the paper board, that you asked them to get from the Cherry River Paper 1835 Company at the time you went there, were in any way doctored up or falsified?

A. No.

Q. You also know Dr. Martin Prucha, who testified here?

A. Yes.

Q. How long have you known him?

A. I suppose close to ten years.

Q. Do you consider him an honest, capable bacteriologist, and an experienced one?

A. Yes.

Q. Have you any reason to suspect that the experiments he performed upon paper board for two years and testing paper machines and the bacteria count on paper board are in any way untrue or false?

A. His proctocols are not. His experiments, I think, are sound.

Q. What about the results of his experiments; do you consider them false or true?

A. You mean by results, interpretation?

Q. The findings that he reported at various times with regard to testing paper board, concerning stability, absorption and sanitary qualities.

A. The results of his test in the form of written reports and material are sound, and, I think correct.

1836 Q. You included those in your report of December 4th, Plaintiff's Exhibit 4, that you handed in to the Board of Health?

A. Yes.

Q. Have you had any experience that causes you to doubt that Dr. Prucha's experiments and research in the field of paper board are in any way unsound or untrue since that time?

A. His experiments are not, no.

The Master: Q. What is it, then?

A. I disagree with his interpretation of some of his experiments, Master.

Mr. Gariepy: Q. Which one of his experiments that he performed at the University of Illinois over a period of two years and six months do you disagree with?

The Master: He didn't say.

The Witness: A. I don't disagree with his experiments at all, but I place a different interpretation on them. I would evaluate them differently.

Mr. Gariepy: Q. They are not worth anything, is that it?

A. Oh, yes, they are worth a whole lot.

Q. I see.

A. But every experimenter can draw his own
1837 conclusions from the experimental data that have been presented. That is the reason we present our experimental data in such detail. The author can draw his own conclusions, while somebody else can draw their own conclusions from the same data.

Q. Then his conclusions that he has drawn from his research work are not true, or not accurate?

A. No, I would not say that, no.

Q. I see.

A. I would simply differ with some of them in some respects, but that we know. I have discussed that with him.

Q. Tell me which one of the conclusions that Dr. Prucha has drawn from his experiments and research work on the single-service container and the paper board you disagree with?

A. Self-sterilization of paper is one of them.

Q. What else?

A. The matter of the dryer sterilizing the paper.

Q. What else? That is two.

A. The bactericidal effect of paraffin.

Q. What?

A. The bactericidal effect of melted paraffin or hot paraffin.

The Master: Q. Anything else?

A. I can't think of anything else right offhand.

1838 Mr. Gariepy: Q. Did you perform any tests on the bactericidal effect of paraffin?

A. Yes, I have performed a few.

Q. When?

A. In the spring of 1938.

Q. Did you report those to the Board of Health?

A. Yes.

Q. Did you ever send Fieldcrest Dairies, who had an application pending then for the use of Pure-Pak containers involving the use of paraffin, the results of your report?

A. No, I did not.

The Master: Suppose we have a five minute recess here. (A short recess was here had, after which the proceedings were resumed as follows:)

Mr. Gariepy: Q. How long have you known Dr. Paul Tracy, who testified here, and who is with the University of Illinois Husbandry Department?

A. About four or five years, I think.

Q. Do you know of any of his research work and writings and scientific articles?

A. Yes.

Q. With special reference to the single-service container?

A. Yes.

1839 Q. Do you consider him competent and efficient in his field of endeavor and work?

A. Yes.

Q. Did you so consider his research work and did you consider it reliable when you made up this report in December, 1937, and included part of his reports and writings and findings herein?

A. Yes, sir.

Q. Is it not a fact that bacteriologists in doing research work perform a very large number of tests before they draw their conclusions?

A. Yes.

Q. And do you consider the tests that you performed in the year 1938 more reliable and more responsible than the tests performed by Dr. Prucha and Dr. Tracy in the years 1937 and 1938 and up until 1939 here?

A. Not any more reliable, but I think just as reliable.

Q. When did you do this research work of yours, what year?

A. I did it in 19—you are referring to the paraffin?

Q. I am referring to the Pure-Pak container, the sterility of the board and the sanitary aspects of the board.

1840 A. I don't think it was on Pure-Pak. I don't know what container it was on.

Q. When did you do it, Doctor?

A. As I said before, in March and April of 1938.

Q. And how much time in March and April of 1938, did you expend or put forth on that work?

A. I would say probably not more than 25 or 30 tests carried out, not more than that.

Q. And do you consider those as accurate and as sound as the number of tests that Dr. Prucha and Dr. Tracy have conducted on this subject?

A. I considered them sound, yes.

Q. Are they as sound and as reliable as compared to the number Dr. Tracy and Dr. Prucha report here?

A. The number, no, but the number is a secondary factor.

Q. Then the point concerning the bacteriologists performing a large number of tests is not significant; you can find the same result on one or two or three tests, and that would be just as reliable, is that it?

A. No. No, that does not follow.

Q. Now, how long have you known Dr. Vaughn, who is the Commissioner of Health of Detroit?

A. Oh, I have known Dr. Vaughn for twenty or
1841 twenty-five years.

Q. And do you consider him an efficient milk sanitarian and public health expert?

A. Well, he is a public health administrator. I would not call him a milk sanitarian.

Q. Do you consider him a public health expert who is efficient and competent?

A. Yes.

Q. And did you so consider him in the months of November and December, 1937?

A. Yes, I did.

Q. Do you know Mr. Palmer of the Detroit Board of Health?

A. I met him when I was there. I did not meet him before.

Q. You never knew him before?

A. No, sir.

Q. Does he hold the same position with the Detroit Board of Health that Paul F. Kruger, who testified here, does with the Chicago Board of Health?

A. A comparable position, yes.

Q. And did you discuss with him there a matter with regard to the sanitary aspects of single-service containers of the city of Detroit, from their experience and use?

A. Yes.

Q. Was anybody present at the time that you held 1842 that conference with Mr. Palmer, securing that information for this report?

A. Yes, sir.

Q. Who?

A. Dr. Vaughn, Dr. Meader, who is in charge of the bacteriological laboratories in the Detroit Board of Health, myself and Mr. Scott.

Q. Was Mr. Hoffman, sitting here, present at the time when you were talking to Mr. Palmer of Detroit?

A. There was a second man besides Mr. Scott. There was a man accompanying Mr. Scott. Who, I don't recall.

Q. How many hours or minutes would you say you were in conference with Mr. Palmer with regard to the Detroit condition, securing information from him for this report?

Mr. Schaefer: I object to that.

Mr. Gariepy: Q. Do you know how much time you put in in checking with Mr. Palmer concerning the Detroit situation on the use of the paper container which you referred to in this report?

The Master: I will let him answer.

The Witness: A. It was during the afternoon. I don't recall. It might have been an hour. It might have been two hours. I don't recall.

Mr. Gariepy: Q. Do you consider Dr. Meader a competent, honest, reliable bacteriologist?

1843 Mr. Schaefer: That is objected to.

Mr. Gariepy: Did you so consider—

Mr. Schaefer: Just a minute. If the Master please,

that is objected to. We have gone pretty far afield here and I have not objected to Dr. Arnold's opinions as to the competency and reliability of witnesses who have testified here. Now, we are going beyond that field and we are going into the realm of Dr. Arnold's opinion with respect to—well, there have been three or four people mentioned so far, and I apprehend there will be more. What he thinks of those men and their work is of no consequence in this lawsuit.

The Master: I will let him answer with respect to this one, and you can renew the objection when others come on.

Mr. Gariepy: Read the question.

(The record was read as above recorded.)

Mr. Gariepy: Q. Did you so consider him in 1937, in the months of November and December, when you consulted with him on this subject?

A. Yes, sir.

Q. Do you know how many single-service containers for fresh fluid milk are being used daily or monthly in 1844 in the United States, and with the consent of health officers, in cities?

A. No, sir.

Q. What investigation, if any, have you made to ascertain that amount?

Mr. Schaefer: Now, if the Master please—

Mr. Gariepy: Wait a minute, Mr. Schaefer. You put this man on as an expert witness here. I did not object to what was said yesterday, for three hours.

The Master: Let him make his objection.

Mr. Gariepy: All right. Excuse me, Master.

Mr. Schaefer: I object to the question, on the ground that we are extending the realm of permissive use of paper containers. I objected to the evidence originally and the Master let it in subject to my objection. Now, we are going into whether an investigation of that use was made. The use itself, I am strongly convinced, is immaterial in this lawsuit.

The Master: The question is what investigation, if any, the witness made to ascertain the amount of single-service containers.

Mr. Gariepy: The amount in use.

The Master: In other cities.

Mr. Gariepy: Of single-service containers.

1845 The Master: In other cities.

Mr. Gariepy: That is right.

The Master: I will let him answer the question.

The Witness: A. I have not made any investigation.

Mr. Gariepy. Q. Has anybody on the Board of Health of the city of Chicago made any investigation or check-up, that you know of?

A. I do not know.

Q. Do you know of any instances where disease or epidemics can be traced to the use of the single-service milk bottle in any city?

A. No. I answered that once before.

Q. No, I asked you about children once before, Doctor.

A. About what?

Q. About children before, babies. I will withdraw it, if I did.

A. Yes, that is the second time that question was asked.

Q. I am sorry if I embarrassed you.

The Master: Well, it has been answered the same way both times, so it is all right.

Mr. Gariepy: Q. Doctor, now let us get back to this matter of the use of the glass milk bottle. When does the real danger in the use of the glass milk bottle, with regard to diseases, in quarantined places, really exist?

1846 A. When?

Q. When. Is it after the quarantine or does the public health hazard exist before the thing is quarantined and before you stop it?

A. I don't understand what you mean by your question, before the quarantine.

Q. Well, let me try to put it a little clearer. In a case where there was quarantine by reason of communicable disease and you trace it back to a glass milk bottle, when has that danger and how long has that danger with regard to that glass milk bottle been existing previous to the time you put on the quarantine?

Mr. Schaefer: Will you read that, Mr. Golding?

(Record read as above recorded.)

The Master: Is there an assumption there that disease was caused by the glass milk bottle?

Mr. Pariepy: Q. Let us assume that it has been caused by the glass milk bottle, Doctor, or traced to it.

Mr. Schaefer: Then what is the pending question.

Mr. Gariepy: Then the pending question, Mr. Schaefer, is how long has that danger been prevalent, been existing,

before they quarantined the place and prevented a further use of that same bottle, without this extra sterilization? 1847

Q. How many days is that, Doctor, usually?

The Master: The only testimony here is, as I recall it, is that after a place has been quarantined—

Mr. Garipey: That is right.

The Master: (Continuing)—then they do not permit them to use glass milk bottles. But I do not recall any testimony here that any glass milk bottles were the cause of the disease in the first instance.

Mr. Garipey: Q. Have you ever been able at any time and in your experience, Doctor, in public health or in bacteriology, to have occasion to trace any disease to a glass milk bottle?

A. No.

Q. Have you ever heard of diseases or epidemics, where there was occasion for quarantine, being traced to a glass milk bottle as the carrier of it?

A. I think there are such instances on record.

Q. Before the quarantine goes on at the place where the bottle was used, how long usually is it that the danger from contamination concerning the use of that bottle has existed, in hours, days or weeks?

A. It depends upon the incubation period of the disease.

1848 Q. Don't they usually quarantine after they have found the bottle and traced it as having come from that place three or four days?

A. I don't understand where the bottle comes in.

Q. The bottle has been going to the house where the disease is, Doctor.

A. During the incubation period?

Q. Yes.

A. You cannot make a diagnosis. How can you quarantine? We quarantine as soon as we make a diagnosis.

Q. And in the meantime the bottle has been going there and the bottle has had this contamination to spread the disease?

A. Yes.

Q. That is right?

A. It cannot be helped.

Q. That is right?

The Master: Q. You say there are instances of records where the bottles have been the source of the diseases?

A. By elimination only, not by proof. That was the only thing that fitted into the epidemical picture. There was no proof.

Q. In what instances would you say the bottle might be the disease source?

A. In case the bottle was the only outside conveyor that came into the home, that could have brought in the disease.

Q. Would you say it would be the bottle or the milk in the bottle, or what?

A. Both. Of course, a bottle cannot carry it, because the contents grow the organisms. If a bottle was contaminated and filled with milk, the contamination grows in the milk.

Mr. Gariepy: Q. Then, Doctor, there is a time when the bottles remain in circulation before the disease has been diagnosed, is there not?

A. Yes, sir.

Q. At the time that you went to see Dr. Breed and Dr. Sanborn in November, 1937, you were thoroughly familiar, from your ten years' consultant work with Kimberly-Clark, with the bacteriology of cellulose products, were you not?

A. Yes, sir.

Q. Had you taken bacterial counts on pulp for Kimberly-Clark?

A. Yes.

Q. At that time did you acquire your information about the behavior of bacteria in cellulose substances, such as Kleenex and Kotex?

A. Yes.

1850 Q. The fibre board used in manufacturing paper containers is also a cellulose product, is it not?

A. Yes.

Q. From a bacteriological standpoint and in making your tests for the number of bacteria, is there any distinction between the behavior of bacteria in a cellulose product such as Kleenex and a cellulose product such as fibre board?

A. There is some difference, but in principle it is the same.

Q. What is that difference, if the principle is the same?

A. Both of them are cellulose fibres. One of them is

a purified cellulose fibre, without any foreign matter of any kind added.

The Master: Q. What one is that?

A. That is the Kimberly-Clark tissue product. That is pure cellulose. Now, the paper board is not purified, even the sulphide pulp is not purified to the extent that the tissue products of Kimberly-Clark are purified. In addition to that, there is resin and various sizings added to it, which alters it in detail, but it is still physically cellulose products.

Q. So far as the fibres are concerned, they act about the same, do they?

A. In principle the same.

1851 Q. Now, you are referring to bacterial action?

A. Yes.

Q. What method of disintegrating the pulp for manufacturing the raw pulp did Sealrite use, if you know?

A. They used the Sanborn method.

Q. Is that a reliable method?

A. Yes.

Q. Is that mechanical or is that a chemical method?

A. That is a disintegration method.

Q. Is that a mechanical method?

A. Yes.

Q. It is mechanical?

A. Yes.

Q. Doctor, what method of disintegrating this raw pulp or manufacturing this raw pulp did Sealrite use?

A. They use mechanical and chemical both.

Q. Both?

A. Yes.

Q. You have referred frequently in your testimony to the capillary action or attraction caused by tubular forms of cells. Where did you have your experience or make your tests from which you reached the conclusion that the tubular structure of the cells cause this capillary action?

A. That is in botany.

Q. In botany?

A. Yes.

Q. When?

A. I had botany with Professor Goebel at Munich.

1852 Q. When was that, Doctor?

A. 1913, 1912 and 1913.

Q. And you were perfectly familiar with that same

action in December, 1937, when you prepared this report, Exhibit No. 4?

A. Yes, sir.

Q. You do not mention it in there, do you?

A. No.

Q. As the result of your studies for Kimberly-Clark, you were undoubtedly familiar, were you not, with the behavior of bacteria and tests for bacteria in these cellulose products?

A. Yes.

Q. You testified that clusters of bacteria were drawn by capillary action into the tubular cells and that for that reason the disintegration test was inaccurate?

A. Yes.

Q. The reason for this inaccuracy, you claim, is that instead of each colony which develops representing one bacteria, it might represent X number of bacteria, is that correct?

A. Yes.

Q. To some extent this is also true of the rinse test in glass bottles, is it not?

1853 A. I don't think so. If you shake well, I think you get a uniform distribution.

Q. The shaking well is done approximately how many times?

A. I think about twenty times, fifteen or twenty times.

Q. Fifteen or twenty times?

A. Yes.

Q. And the purpose and method of this hand shaking—that is what it is, is it not?

A. Yes.

Q. (Continuing.) —is to do what?

A. Is to rinse off the sides and suspend the material uniformly in the rinse water.

Q. Is it not to dislodge the bacteria?

A. It is to rinse them off the sides, yes.

Q. That is a physical process and not a chemical, is it not?

A. A physical, yes.

Q. That rinse test?

A. Yes.

Q. And that is the test you use on glass milk bottles?

A. Yes.

Q. Is it not a fact that in performing the rinse test

on a glass bottle the clusters or clumps of bacteria are never completely broken up, so that the colony of bacteria which is counted on performing the rinse test of the glass bottle may represent more than one bacteria

• 1854 or an unknown quantity, which you refer to as X?

A. It might. The possibility is there.

Q. And that might apply also in the paper bottle?

A. Yes.

Q. Then the test concerning the rinse test on heat in regard to the accuracy and the X number of bacteria is the same?

A. Yes.

Q. Is the capillary attraction of the tubular cells you testified to a physical or chemical process?

A. It is probably more physical.

Q. In breaking up the clusters of bacteria in the tubular cells you have a physical problem and not a chemical?

A. I think it is more physical than chemical, but I do believe there is some chemical.

Q. If this tubular cell itself is broken by the physical treatment in here, of any type, that will scatter the clusters of bacteria that you refer to, is that right?

A. No.

Q. Then they are all together?

A. Yes, sir.

Q. In this one colony of bacteria containing X 1855 number?

A. You mean the fibre is there?

Q. Yes.

A. And the bacteria adhere to the fibre.

Q. And there is an X number then?

A. Yes, on the fibre.

Q. Then it is not the tubular shape that causes it, is it?

A. No, I don't think—that is the reason it is not all physical. Those that are tubular shaped will have more bacteria on them than the disintegrated fibres. The disintegrated fibres still have bacteria adhering to them.

Q. How will you go about breaking up the tubular cell structure as to be able to count the actual number of bacteria in a given number of cells?

A. I spent a lot of time trying to do that, and I have not succeeded.

Q. Do they do it by the rinse test in any way, that you know of?

A. You haven't cellulose fibres in the rinse test.

Q. You are sure about that, are you?

A. I don't think you have. I don't know where they come from.

Q. Unless the tubular form of cell was present on the paper to which you are applying the disintegration test, your criticism would not apply, would it?

A. No.

Q. Do all forms of paper have the tubular forms of cells?

A. Yes.

Q. Did the paper you tested for the Sealrite Corporation and upon which you changed opinions in May, 1938, show the tubular fibre to which you testified?

A. Yes.

Q. Was that paper used for milk containers?

A. I think it was.

Q. You are not sure about it?

A. There were so many samples tested. I know there were some milk container samples in the test lots.

Q. Have you made any independent tests of fibre board or cellulose products, other than the Kimberly-Clark and for the Sealrite Corporation?

A. Yes.

Q. For whom?

A. A disintegrated container, unparaffined container.

Q. For whom did you perform those tests?

A. For my own information. They were sent to me by American Can and by Ex-Cell-O.

Q. When was that?

A. That was early in 1938.

Q. When did Ex-Cell-O send you some early in 1938?

1857 A. They sent some to my home address, a box of—it was either six or twelve—unparaffined containers.

Q. From Detroit?

A. From Detroit, yes.

Q. Did you ever report to them the result of those tests?

A. No, I never did. Part of them are still at home, in my library.

Q. Explain what you mean by pulp which is manufactured by the chemical instead of by the mechanical process, to the Master.

A. The chemical process is a cooking process, where the lignin and resins are dissolved out of the cellulose fibres. It is a chemical extraction method for the purpose of purification.

The Master: Q. What about the mechanical?

A. The mechanical method is such that the logs, instead of being put in large cookers under pressure and steam and heat and alkali, as in the sulphide or cooker method of extraction, in the mechanical method there are grinders, and those grinders are regular carborundum stones. The logs are put in the grinder and pressed with severe atmospheric pressure, against those rotating carborundum stones, and it grinds off the pulp. It comes out a bluish yellow creamy mass, right out of the grinder, and 1858 then is washed several times and is used as mechanical pulp. It is disintegrated mechanically and then it is disintegrated chemically.

Mr. Gariepy: Q. The chemical process breaks the fibres down, doesn't it?

A. Not always. No, it does not break them down. That is, it is hoped they won't be broken down. If they are over-cooked, they will break down, but it is the purpose of the paper chemist to merely extract, and he wants to extract from the wood, leaving the fibres as long as he can, and as nearly intact as he can, so as to give stability and strength to the paper.

Q. When the chemical process is carried on and finished does not the material result in a flaky material?

A. Yes.

Q. And when the mechanical process is ended, isn't that a sort of a beady type of material?

A. No, sir.

Q. Is there any difference in the type of material when it gets through the two processes?

A. There is a little difference in the color, but there is very little difference between the two pulps as 1859 you see them.

Q. At what temperature is this cooking process that you refer to carried on, if you know, in the paper board mill, and at what temperature?

A. It is a high temperature, but I could not give you the temperature of the vats.

Q. And what is the acid or the liquid put in there?

A. They first use alkali and then neutralize it with acid.

Q. What acid?

A. Sulphuric.

Q. Would you say that this pulp, after it had gone through the chemical cooking process, is shapeless, or does it have shape?

A. Oh, yes, it has shape.

Q. Would you say that this material is not flaky and that the fibres are subject to capillary action, is that so?

A. Yes, sir.

Q. Did I understand you to say it was flaky or not flaky, Doctor?

A. I don't know just what you mean by flaky.

Q. You know what a snow flake is; you know what soap flakes are?

A. Oh, no, it is not like that.

Q. It is not?

A. Oh, no.

1860 Q. What is it?

A. It is fibrous. It is pulp. That is all. Pulp is pulp.

Q. Would fibre board made from a chemical formed pulp be more easily disintegrated for bacterial tests than wood made from a mechanical pulp?

Mr. Schaefer: You mean paper?

Mr. Garipey: Paper board.

A. I don't know that there would be any difference. I have not observed any difference.

Q. Have you ever attempted to ascertain by experiments whether there is any difference?

A. Well, I have disintegrated both and I did not observe any difference.

Q. When did you do that?

A. It was done at Sealrite, when I was there. It was done in the laboratory that was put in there.

Q. They had the mechanical process at Sealrite?

A. They had both the mechanical and chemical.

Q. And you tried both of them, did you?

A. Yes.

Q. Why did you make the test, Doctor? Did you make it to ascertain whether it was free from bacteria or not?

1861 A. I made the test from the first raw material to the finished product, step by step.

Q. Why?

A. To ascertain, as best we could, the sanitary qualities of each step.

Q. The amount of the bacteria?

A. Yes.

Q. Did you in those tests determine the relative amount of bacteria in each, one made by the chemical and the other by the mechanical process?

A. Not that I know of.

Q. Those are reliable tests, those disintegration tests, are they?

A. They are the only tests available. I don't think they are reliable.

Q. Do you know of any more accurate tests?

A. I do not.

Q. Has the Health Department of the City of Chicago made any disintegration tests on Cherry River Paper Company board?

A. Not that I know of.

Q. Did you ever make any on Cherry River Paper Company board?

A. Not to my knowledge.

Q. Have you ever seen the Cherry River Paper Company mill in Virginia?

A. No, sir, I have not.

Q. You are not acquainted with any of the sanitary methods, then, that are employed there?

A. Except what I heard testified to by Dr. Sanborn.

1862 Q. You believe that testimony that you heard?

A. Yes.

Q. Have you ever visited the Gardner-Richardson fabricating plant?

A. No, sir.

Q. Did you hear the testimony concerning the sanitary methods there employed, with regard to the hospital, and sanitation for the employees and the storage of the paper and keeping the paper?

A. Yes.

Q. You were present at the time those exhibits went in showing the keeping of large blocks of paper and putting them on cars for shipping and so on?

A. Yes.

Q. You heard Mr. Fisher testify concerning the warehouse and the care taken in the storage of the paper, didn't you?

A. I heard him testify.

Q. Do you consider those sanitary methods for the prevention of contamination?

A. What he testified to, yes.

Q. Have you any reason to believe that those methods are not employed?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Did you see the results on November 16, 1937, of the Breed-Sanborn tests of the Cherry River board?

A. I don't recall the date. I saw some tests, yes.

Q. When you were at Geneva to see Dr. Breed and Dr. Sanborn?

A. Yes.

Q. Did they make any additional tests at your request?

A. Yes, sir.

Q. Were you satisfied with the result of those tests?

A. Yes.

Q. Did you know at that time the method or technique employed in performing those tests?

A. Yes.

Q. The results of those tests were satisfactory to you, were they not?

A. The results of the tests showed an improvement.

Q. Were they satisfactory to you or not?

A. They were not sterile. Therefore, it was not satisfactory. I thought I could make them sterile.

Q. Did you report anything in Plaintiff's Exhibit 4 to Dr. Bundesen, after you had been there and had these tests made and checked, concerning the fact they were unsatisfactory to you?

A. Except the first paragraph, in which I said that cardboard of a satisfactory sanitary quality can be obtained and used for this purpose. I was thinking of sterilizing the product, which I thought I could do at that time.

Q. Have you done it since?

A. No, sir, I have not.

Q. You were satisfied with the methods that they employed at that time, were you not?

A. That is the only method available.

Q. Why have you changed your mind now with regard to the method being improved on?

A. Why, just from knowledge that I have always possessed. I don't know of any way of improving on it. I don't think the product is perfect.

Q. Doctor, having your knowledge which you acquired from the Kimberly-Clark consulting work and by which you gained your familiarity with cellulose products and knowing the methods used in performing the tests, you were satisfied that those tests proved your statement in Plaintiff's Exhibit 4 that a sterile board could be obtained, weren't you?

A. Yes, sir.

Q. Is it not a fact that you were not referring to the future in this statement, Plaintiff's Exhibit 4, referring to this cardboard, but you were referring to the time that the report was made, and that you were then satisfied that the Cherry River Paper Company board was essentially sterile?

1865 Mr. Schaefer: I didn't get that.

Mr. Garipey: Read it.

(Record read by reporter as above recorded.)

The Witness: A. No, there were several specimens of the Cherry River board that were sterile. I thought it was possible to make it all sterile. There were low counts—where there was a bacterial count made, they were very low.

Q. Will you explain this phrase from page 4 of your report of December, 1937, Plaintiff's Exhibit 4, reading from the first line: "Cardboard of a satisfactory sanitary quality can be obtained and used for this purpose." What did you mean then, Doctor?

A. I meant that there was some of the board sterile, that is, sanitary, and I thought that was safe. The other counts were very low and I thought they could be made sterile, inasmuch as there were some of the counts that showed sterility.

Q. You were referring to the present time, then, that is, December, 1937?

A. Yes, sir.

Q. Doctor, do you require absolute sterility of a glass milk bottle?

A. No, sir.

Q. Why do you want to require it of paper milk bottles?

A. I don't know where the bacteria comes from, 1866 and I don't know whether they come from the cover or come from the employees. I don't know where they come from.

The Master: Q. In the case of the paper?

A. In the case of the paper. It is without the jurisdiction of the health officers.

Mr. Gariepy: Q. Do you know where they come from in the glass bottle at all times?

A. They are under our inspection, under our jurisdiction.

Q. The city dumps and the places where they gather up the bottles, are those under your inspection?

A. The glass bottles are washed properly, no matter where they come from.

Q. Do you inspect the Milk Bottle Exchange washing?

A. No.

Q. Or any of the processes employed there in picking up and washing and returning bottles?

A. No.

Q. You testified that this absorption item in the paper board presented a health problem, is that right, Doctor?

A. Yes, sir.

Q. If you thought that a health problem was involved, due to the absorption in the use of paper containers, why did you not test the milk from such containers?

A. I did not think it was necessary to test the milk from such containers.

Q. That was your theory?

A. Yes.

Q. That it was not necessary?

A. Yes.

Q. Then the use of paper containers is not objectionable from a public health standpoint, unless the milk therein is contaminated by the container, is that right?

A. Read that question.

(Mr. Gariepy's question was read by the reporter as above recorded.)

A. Yes.

Q. And if you do not test the milk, then you cannot tell whether the container is giving you any contamination?

A. Yes, I think so.

Q. How are you going to tell whether it is giving you contamination if you have not tested the thing that the public is going to drink?

A. There is no use of testing the entire product, if it

is put into a porous container. You have got to control the sanitary quality of the container.

1868 Q. But if you do not know what the porous container gives into the milk, how are you to be able to say that the milk is poisonous or deleterious to health, that is in the container?

A. Because there are thousands of conditions and you cannot test but one, and the paper containers are not uniform.

Q. Are not they more uniform than glass bottles?

A. No, I don't think so.

Q. Are not their counts more uniform?

A. I don't think so.

Q. Have you checked upon the counts?

A. You mean the disintegration?

Q. Right.

A. The disintegration or rinse test?

Q. Both tests.

A. No, I don't think so.

Q. What counts do you know of in the past two years on the paper board as compared with the counts on the glass milk bottle that show a lack of uniformity?

The Master: What counts?

Mr. Gariepy: In the paper container. He says that the paper container is not uniform, that the counts are not uniform, and therefore they cannot do anything about it.

The Master: What does that have to do with milk 1869 containers?

Mr. Gariepy: He talks about the fact that the glass is standard.

The Master: He is talking about these dead bodies of bacteria in the wall of the paper container and he is not talking about any dead bodies in the wall of the glass bottle. I think he explained that before.

Is that right, Doctor?

The Witness: Yes, sir.

Mr. Gariepy: Q. Have you ever found pathogenic bacteria in paper board used in paper milk bottles?

A. No.

Q. I am referring to those that are harmful.

The Master: Pathogenic?

Mr. Gariepy: Yes.

The Witness: A. They are harmful. The two are the same thing.

Mr. Gariepy: Q. You would not have submitted this report, Plaintiff's Exhibit 4, to Dr. Bundesen of the Board of Health, if you thought that paper milk containers presented a public health hazard, would you?

A. No, sir.

1870 Q. You never saw Mr. George D. Scott, about whom Mr. Schaefer asked you yesterday, until he was referred to you by Mr. Paul Krueger of the dairy division, is that right?

A. Yes, sir.

Q. In November, 1937?

A. Yes, sir.

Q. You did not think he was asking of you anything improper by seeking to have you do this research work and present a report to the Board of Health, did you?

A. No, sir.

Q. You would not, simply because of the fact you were receiving a fee of \$250 a month or a fee of so much per month over a period of four months, plus your expenses, have in any way falsified this report to the Board of Health, would you?

A. No, sir.

Q. When you prepared Plaintiff's Exhibit 4, you honestly believed that the information you were submitting was responsible evidence of the matters therein discussed, didn't you?

A. Yes, sir.

Q. And do you so believe now?

A. No, I do not now.

Q. What reason have you to distrust any of the 1871 information which you submitted in this report?

A. I think the information is sound, but it does not go far enough. There are factors I did not know anything about that are operating that should be included in considering the sanitary standards of the paper container.

The Master: Q. What was the date of that report, Doctor?

A. December, 1937.

Mr. Gariepy: December 4, 1937.

The Master: Q. When did you find those other factors?

A. 1938, the middle of the year, around April, May, June and July, along in there, maybe May, June and July, but right in the middle of the year.

Mr. Gariepy: Q. You testified on direct examination

that this was merely a preliminary report. What further work did you do in May, June or July of the following year and what did you contemplate when you handed in this report? Let us take first one, Doctor. You said this was a preliminary report?

A. Yes.

Q. What further work did you contemplate after you handed in this report?

A. I wanted to know what further work Mr. Scott 1872 wanted to do, what was being planned to do, whether to investigate some angles of it further, or not.

Q. What did you plan to do when you were going to investigate this over a period of four months and then you handed in this report in one month?

A. The one thing I wanted to investigate was the containers after they were filled with milk, as to their durability, particularly the leakage, the number of accidents that might occur in the handling, doing mainly an efficiency engineering study, from an unbiased source, and I thought that from the standpoint of paraffin, the temperature of paraffin to be used, that should be looked into. There were several points not discussed in great detail, as there was no further desire for my services after this report was rendered. There was nothing more said and I didn't say any more myself.

Q. Didn't you in this report submit data concerning the durability of paper containers?

A. By mechanical means, not by ordinary handling procedures.

Q. Are not these mechanical means more severe than the ordinary handling of a bottle by a housewife or in the store?

1873 A. Possibly not, no. They are not hitting on sharp corners. They are not hitting on the corners of steps. They are not subjected to the same type of ordinary dairy practice handling that a container might be subjected to.

Q. In other words, these tests shown in this report, which were made at the University of Detroit, with regard to 400 pounds upon a container, were not reliable, in your opinion, with regard to ordinary handling as between the housewife, in the store and in the ice box and on the table, is that right?

A. I think they were reliable, but I don't think they extended far enough in a good many ways. There are no

sharp points against it. There are many things that could happen to the container.

The Master: Q. What is the effect of a sharp corner?

A. Penetrating the paper and making leakage.

Mr. Gariepy: Q. Do you know of any instance, Doctor, where with ordinary handling the single-service milk container ran into sharp points and caused leakage?

A. No.

The Master: Q. Is there anything short of leakage that a sharp point might do?

A. I don't know, Master. I should think it could partly puncture, it might fracture, it might scrape into it. I don't know. It was those things I wanted to find out.

Q. Let me suggest something to you. What if you happen to hit the corner so that some of the paraffin might be chipped off.

A. Yes, sir, that is a possibility.

Mr. Gariepy: Q. Is there any leakage in the glass milk bottle or leakage problem?

A. Problem, you say?

Q. Yes.

A. Yes.

Q. And that existed in December, 1937?

A. Yes.

Q. And you so advised Mr. George Scott, by letter, that there was a leakage problem in the glass?

A. Yes, sure there is, yes, sir.

Q. Does that leakage problem in the glass present any different problem than leakage you say might exist in the paper container, from a public health standpoint?

A. I don't hardly think so. I was just interested in ascertaining how frequently it occurred and whether it did occur or not.

Q. Have you now detailed to the Master all the work that you contemplated doing after you filed this preliminary report in December, 1937, on this single-service container problem?

A. I don't recall what was contemplated at this time. It was rather hazy. We were going to work together and get what information we could.

The Master: Q. Let us put it this way, then: What other work have you done or what other information have you obtained since you submitted that report?

A. I have obtained considerable information, Master.

Q. Have you detailed that in your direct testimony?

A. Yes, sir.

Mr. Gariepy: Q. Did Mr. Scott at any time make any suggestions to you with regard to preparing this report and embodying your conclusions therein, which would mean that you put something in the report that you did not honestly believe?

A. No, sir.

Q. This \$250 fee and expenses that you testified on direct you received, covered the first month's work, is that right?

A. Yes.

Q. After you discussed the report with Dr. Bundesen, why did you do nothing further, to complete what you describe as further work on this report?

A. There was no request for me to continue.

1876 Q. Did you write any letter to Mr. Scott or Mr. Dean with regard to continuing any further work?

A. I don't recall that I did. I don't think I did.

Q. Did you write them any letter with regard to the Ex-Cell-O machine being set up and being supervised by the Board of Health here in the city of Chicago?

A. Mr. Dean saw me.

Q. Did you write any such letter concerning that, Doctor?

Mr. Schaefer: Who?

Mr. Gariepy: Q. You, Doctor.

Mr. Schaefer: Write to whom?

Mr. Gariepy: Write to Mr. George Scott.

Mr. Schaefer: Who?

Mr. Gariepy: Mr. George Scott. Mr. Schaefer, let me continue, please.

Q. Did you write a letter at any time in the month of December, 1937, after you handed this report to Dr. Bundesen concerning the Board of Health of the city of Chicago supervising the installation of this machine?

A. No.

1877 Mr. Gariepy: Mr. Reporter, will you mark this Plaintiff's Exhibit 83?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit 83 for identification.)

Mr. Gariepy: Q. Will you look at that letter, dated

December 17, 1937, on University of Illinois stationery, and tell me whether it is signed by you?

A. Yes, sir.

Q. Did you write that letter on that date?

A. Yes, sir.

Q. Did you not say something in that letter concerning the supervising by the Board of the installation of the Pure-Pak machine?

A. No, sir.

Q. After you had this conference with Dr. Bundesen on or about December 8, 1937, did you write Mr. Scott regarding the result of the conference, as it relates to this report?

A. I think I did, yes, sir.

Q. When you were discussing this report with Dr. Bundesen, did he criticize you severely for having undertaken this work first without consulting him?

1878 A. I don't recall him doing that, no, sir.

Mr. Gariepy: Mr. Reporter, will you mark this Exhibit No. 84?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit 84 for identification.)

Mr. Gariepy: Q. Will you look at Plaintiff's Exhibit 84 for identification, Doctor. Was that written by you?

A. Yes.

Q. Was the attached carbon copy of the letter, dated December 9, 1937, addressed to Dr. Thomas Parran, also attached?

A. Yes.

Q. And that was in connection with this report?

A. Yes.

Q. Were the facts as recited in this letter to George D. Scott, dated December 9, 1937, true and accurate at that time?

A. Yes, I think they were, yes, sir.

Q. Then is it not a fact that Dr. Bundesen, on seeing you, was so definitely set against the paper container that he criticized you for not consulting him before you undertook the work?

A. No, sir.

1879 Q. Did you have any conversation with Mr. Dean regarding the results of your conference with Dr. Bundesen on this report?

A. I think I did. I know I saw Mr. Dean. I must have discussed that with him.

Q. Did you discuss anything further with him in regard to Dr. Thomas Parran and Mr. Leslie Frank of the United States Public Health Service as it relates to the use of the single-service container in the city of Chicago?

A. With whom?

Q. Mr. Leslie Frank.

A. To whom? I mean, I discussed it to whom?

Q. With Mr. Dean.

A. I don't recall.

Q. You may have had such a conversation?

A. Yes.

Q. And can't remember it?

A. Yes. I may have had it, yes, sir.

Q. Did he exhibit to you in any such conversation the original of a letter from the United States Public Health Service, addressed to him, signed by Dr. Leslie Frank, pertaining to the use of the single-service container in the city of Chicago?

A. Yes, I recall him showing me a letter. Yes, I know he did.

1880 Q. Did you have any conversation with him concerning that letter of Dr. Frank to him, a copy of which went to Dr. Bundesen, or not?

A. Yes, I know I did. Yes, I know we had a conversation about it.

Q. And did you not tell him in that conversation that Dr. Frank had gone through Chicago just recently and that Dr. Bundesen had seen him, so that this letter to Mr. Dean concerning the use of single-service containers in the city of Chicago would be cancelled?

A. I do not recall saying that. I don't remember whether Mr. Frank was through or not.

Q. You may have said so?

A. Yes, sir.

Q. And you may not?

A. Yes, sir.

Q. Who fixed the figure, Doctor, of \$1,000 for this research work; you or George Scott?

A. It was at my suggestion, sir.

Q. On the basis of \$250 a month?

A. Yes.

Q. Is it not a fact that the reason you received only

\$250 was that you reported to Mr. Scott that Dr. Bundesen was so unalterably opposed to the paper milk container, that regardless of any more work that you could do on the question you would not be able to get a permit for its use in the city of Chicago?

1881 A. I don't think so, no.

Q. You may have said so and cannot remember it, is that it?

A. I don't think I had any reason to make that statement.

Q. Did you make such a statement, or do you remember it or not?

A. I don't remember it, no.

Q. Is it not a fact that you asked George Scott, at the Palmer House in Chicago, when you and he reviewed the report that you had prepared, in what form he wanted the permit.

A. I don't think so. The permit would have to be a written permit, passed by the Board, and I don't recall just—

Q. Did you ask the question?

The Master: Let him answer the question.

Q. You don't recall what?

A. I don't recall discussing it, because it is a fixed rule in the Health Department.

Q. You were not connected with the Health Department at that time?

A. No, I was not connected with the Health Department at all, no.

Mr. Gariepy: Q. Did you ask him, Doctor, my question is, as to the form in which he wanted the permit for the use of paper milk bottles in the city of Chicago?

A. No.

1882 Q. And the reason you did not ask the Ex-Cell-O Corporation or George Scott for any more than \$250, or complete the work that you were to undertake for a period of four months, was because you found that your efforts and the Ex-Cell-O Corporation's money would have been wasted, isn't that true?

A. No, I don't think that is true.

Q. Why was it, then, that you did not go ahead with any further work for them? You were not on the Board of Health then, were you?

A. No. I understood from Mr. Scott that he was mainly

interested in getting a permit for distribution in Chicago, that is, the installation of his machine in Chicago, and was not interested in any further research work that I might be able to contribute, which would not be very much anyway, as I did not have a machine at my disposal to work with, and I think that reason was the reason we stopped there. There was no official resignation, nothing official about it.

The Master: Q. Was there any work you did that was any different from the work he had done before?

A. I don't do any work. I simply reviewed the material available and got a report. The only work I could say I did was the two interviews I had, one in Detroit and one in Geneva. I did no laboratory work, no work with 1883 the container or with the machine.

Q. Just what work did they hire you to do?

A. Compile a report.

Q. Didn't they have reports before?

A. There were isolated instances. The report of Dr. Prucha and Dr. Tracy and a report from the engineering department of Wayne University, and a report on paraffin, they were all isolated instances. My function was to get them all together, as in Exhibit 4.

Q. But you only rendered a preliminary report?

A. Yes, sir.

Q. What good was that, until you had everything finished?

A. That was as far as I went with this work.

Mr. Gariepy: Q. Why didn't you go any further with this work?

A. There was no request to go any further with it.

Q. Didn't you have some sort of an agreement for four months' work, Doctor, \$1,000 at \$250 a month?

A. Yes, in conversation with Mr. Scott. I understood on the telephone when I talked to him in Detroit there, he said, "We will let it stay the way it is," or, "I will let you know in the future," or something of that kind. It was left indefinite.

1884 Q. You left it indefinite or did he leave it indefinite? Who left it up in the air?

A. Probably both of us. Probably one as much as the other. I think we understood each other.

Q. Is it not a fact that you understood, after seeing Dr. Bundesen and after seeing this correspondence of Mr. Leslie Frank and Dr. Thomas Parran at Mr. Dean's office,

you fully understood that regardless of how much research work you did on the subject, you could not get a permit?

Mr. Schaefer: That is objected to.

Mr. Gariepy: No, he can answer that.

Mr. Schaefer: The witness' understanding is not material.

Mr. Gariepy: He told about Mr. Scott's understanding.

The Master: I will let him answer.

The Witness: A. I don't know whether I can answer that question.

Mr. Gariepy: Read the question, Mr. Golding.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. No.

Mr. Gariepy: Q. Did you tell George D. Scott that on the telephone one morning, from Chicago to Detroit? 1885 A. Yes. He was speaking of a permit within a short period of time, which I told him was impossible to get, as it would have to—there would have to be an inspection system or certification system of some kind developed, and it could not be developed quickly.

The Master: Q. Who told you that?

A. Dr. Bundesen.

Mr. Gariepy: Q. Was that in writing or verbal?

A. That was verbal.

Q. Was not one of Dr. Bundesen's objections to the paper milk bottle or the paper container that they were not recognized by the United States Public Health Service?

A. Yes, sir.

Q. Are they so recognized at this time?

A. Yes, the last modification.

Q. Were you present in January, 1939, when George D. Scott called at the office of the Board of Health and saw Dr. Robert A. Black concerning this permit?

A. No, sir.

Q. Were you not seated outside the door of that room with Mr. Paul F. Krueger?

A. I don't recall seeing Mr. Scott.

Q. Did you hear any conversation between Dr. 1886 Robert Black and George D. Scott on that occasion, concerning the issuing of this permit?

A. No, sir.

Q. You heard George D. Scott testify here?

A. Yes.

Q. Concerning that conversation?

A. Yes.

Q. And his asking Dr. Black what further they could do to secure this permit, to satisfy him and the Board of Health, did you?

A. Yes, sir.

Q. And you did not hear any part of it?

A. I was not in the room at all. I didn't know he was there.

Q. Or outside?

A. No, sir.

Q. Did the Ex-Cell-O Corporation and George D. Scott do everything that you requested or suggested or what you thought was necessary for the preparation of this preliminary report, up to the time that it was submitted to Dr. Bundesen?

A. Yes, sir.

Q. And up to the time that Paul F. Krueger saw it?

A. Yes.

Q. And you put in the three hours you mention in this letter of December 9th to George D. Scott with Dr. Bundesen going over this report?

1887 A. It was not all on this report, no, but there were several other things I discussed with him. I was there about three hours. I was there all afternoon, but I don't think it was all on that report. I cannot recall the conversation.

Q. Will you explain this phrase in this letter to George D. Scott, dated December 9, 1937, Exhibit 84: "I have never been concerned with a situation so hopelessly involved as yours."

What did you mean by that phrase, "hopelessly involved"?

A. I mean hopelessly involved, because so many questions were asked as to the origin of the paper, the handling of the paper, and there was the idea that there should be some sort of inspection and certification system; there was no machinery set up for it; it would take time to do it; and how the machinery was to be developed, where and by whom. For one seeking a permit, as Mr. Scott was, you cannot put your finger or could not put your finger on anything to make it move. That is what I referred to, sir.

Q. Is there any sort of inspection and certification system in the use of the glass milk bottle in the City of Chicago?

A. No.

1888 Q. But that is what you referred to concerning the paper bottle?

A. Yes, sir.

Mr. Gariepy: Mr. Reporter, will you mark this Plaintiff's Exhibit 85 for identification, and this Plaintiff's Exhibit 86.

(The documents referred to were thereupon marked Plaintiff's Exhibits 85 and 86, respectively, for identification.)

Mr. Schaefer: Q. When you say there is no inspection, you do not mean there is no inspection of the glass bottle, do you?

Mr. Gariepy: Mr. Schaefer, will you please. I have the witness. I did not interrupt you.

Mr. Schaefer: All right.

Mr. Gariepy: Q. Will you look at Plaintiff's Exhibit 86, a letter dated November 29, 1937, on the stationery of the Treasury Department, signed "Leslie Frank." (Handing document to the witness.)

A. Yes, sir.

Q. Is that the letter that you referred to when I asked you concerning correspondence between Mr. Frank and Mr. Dean regarding the use of the single-service container in the city?

A. Yes, sir.

1889 Q. Will you look at Plaintiff's Exhibit 85 and tell me whether you ever saw that letter in the presence of Mr. Dean or at his office?

A. Yes, I saw that at his office, yes, sir.

Q. And is that the letter over which you had this conversation which you said might have taken place but you did not remember?

A. Yes.

Q. Dr. Arnold, is it not a fact that after you saw this correspondence at Mr. Dean's office, you then and there told him that you thought that you saw the handwriting on the wall and there was no use of going any further, that Dr. Bundesen had saved or helped Mr. Frank in his job and you could not do anything more on it?

A. I don't think I said that.

Q. Will you say you did or did not make any such statement?

A. I did not make it.

Q. You did not make it?

A. I am sure I did not, no, sir.

Q. Did you say that to him when you were going over to see Dr. Herman Bundesen with Plaintiff's Exhibit 4 here?

A. I don't think I said that at any time, no.

1890 Q. The Master asked you a few minutes ago concerning your work in preparing this report. Did you not go to the Chicago Carton Company?

A. Yes.

Q. The fabricating plant where it was proposed to obtain cartons to use?

A. Yes, I did.

Q. And you reported upon the conditions concerning sanitary methods employed at said plant here?

A. Yes.

Q. And they were, in your opinion, sanitary?

A. Yes.

Q. Didn't you go to the Risdon Dairies, in Detroit, using the Pure-Pak single-service containers, and inspect the operation there?

A. Yes.

Q. And how long did you spend in the dairy inspecting the machine in actual operation bottling the milk?

A. I think the forenoon.

Q. All morning?

A. At least two or three hours, I think.

Q. Did you not make inquiry at the Providence Hospital in Detroit concerning their experience with single-service containers with patients in the hospital?

A. Yes.

1891 Q. From a public health standpoint?

A. Yes.

Q. Didn't you receive a reply that it was favorable?

A. Yes.

Q. That they found no contagion and no cause for denying their use to hospitals?

A. Yes, sir.

Q. Was it that experience and that information so obtained that caused you to recommend to Dr. Bundesen that the use of such containers in hospitals was one of the great advantages in the use of single-service containers?

A. That was part of it, yes.

Q. Then you were recommending the use of single-service containers in hospitals, for people that were sick and not up to par, but you do not recommend it for people that are in normal condition of health, is that it?

Mr. Schaefer: I object to that.

The Master: I will let him answer.

The Witness: A. No, I don't think so.

Mr. Gariepy: Q. But you do recommend it for people in hospitals?

A. If it is non-porous, which I thought it was at that time.

1892 Q. Then the non-porosity is the whole crux of the thing, isn't it, Doctor?

A. That is one of the principal factors.

The Master: Q. Do they use these single-service containers at the present time in hospitals?

A. In some hospitals, yes.

Q. In Chicago?

A. No, sir, not in Chicago.

Q. I suppose it would be a matter of judgment as to which would be the greater danger, wouldn't it, as to whether sick people might be made well by the use of the single-service container, or whether well people might be made sick by the use of some milk bottle that had been used in a sick room?

A. Yes, sir, that is right. It is a two-sided equation.

Q. But they do not use, you say, in Chicago, this single-service container even for contagious diseases?

A. No, sir.

Mr. Gariepy: Q. Do you know of any hospitals in cities that use the single-service container where they do not use it in the hospitals, like New York City, Philadelphia, Los Angeles, San Francisco?

A. I am not familiar enough with it to know, sir.

The Master: Q. Is there anything in this United States Health Ordinance on the subject that you know of?

A. On which subject, Master?

Q. On the use of single-service containers, in the sick room?

A. No, sir, not that I know of.

Mr. Gariepy: Q. Doctor, I take it that you have not checked the cities that are using the single-service container during the past two years, nor the amount of the use, that is, bottles per day, nor the extent of the use of the single-service container in hospitals.

A. No, sir.

Q. And without having that information, you consider

yourself competent to pass upon the merits, from a public health angle, of the single-service container, do you?

A. Yes, sir.

Q. And without knowing any diseases that have been contracted by reason of the use of the single-service container in the cities and villages that have had it and at hospitals that have permitted its use, you are still of the opinion that you are qualified to say that the single-1894 service container presents a health problem?

A. Yes, sir.

Q. Were you in the Ex-Cell-O Corporation plant in Detroit when you went to make this survey?

A. Yes.

Q. Did you inspect the operation in the plant?

A. Yes. They started a machine for me in the plant.

Q. And how long did you put there in the plant watching the machine operate, in order to ascertain the health problem involved?

A. You could not tell the health problem involved from an empty machine running.

Q. From anything that it showed, with regard to metals used and so on?

A. I think it was very good. I was there two or three hours; two hours, probably.

Q. How many employees are used in filling milk on the Pure-Pak machine?

A. I don't remember. They were in the dairy, but I don't know how many were there.

Q. If I told you that only two men are employed, one at the end to take it out when it is finished and one at the other end to inspect the blanks, would you say I was wrong?

A. No, I would not say so.

Q. How many men are employed in a bottling plant 1895 from the time the bottle leaves the sterilizer and the last wash to the time it is capped and filled?

A. About three.

Q. Three?

A. Yes.

Q. The number of people that are employed in that filling process becomes a health problem, because of this human contamination element?

A. Yes.

Q. And the lesser employees used the lesser the health hazard?

A. Yes.

The Master: Do I understand you to say that the lesser the number of employees the lesser the health problem?

Mr. Gariepy: Yes. The less mechanical handling there is.

Q. Is that right, Doctor?

A. The less possibility of contamination.

The Master: Q. Let us turn it around. Let us assume that one of the men is very much diseased and you would get the full benefit of his contamination, where if you would distribute the work among more you would not get so much.

A. That is quite true, but the man would not be in the milk plant, under supervision, if they knew anything about it. Whoever holds the permit would be in violation 1896 of the ordinances and would stand the danger of revocation of his permit.

Q. But that sick man among a great number would not have so much work to do on the particular containers?

A. That is true in that respect, yes.

Mr. Gariepy: Q. And that sick man's condition could be detected in the plant distributing milk in Pure-Pak containers just as quickly and easily as in the plant putting up milk in glass bottles?

A. Yes.

Q. The inspector would find that out?

A. Yes.

Q. Did you open the paraffin bath in the machine at the Ex-Cello-O factory?

A. I probably did. I don't recall specifically anything specific about it, but I am sure I saw most all parts of the machine.

Q. Did you examine it at the Risdon Dairies, when the machine was bottling milk there?

A. I think I did, yes. I watched the machine, at least.

Q. Were either of these machines at this time giving off any rancid odors?

A. Not that I recall, no.

Q. Does paraffin in its natural state have a sweet odor?

A. I would consider it odorless.

Q. You would consider it odorless?

1897 A. Maybe it is not.

Q. When did you first become acquainted with the acidity possibilities of the oxidation of paraffin, Doctor?

A. As a student in chemistry.

Q. How many years ago was that?

A. Oh, it was a number of years ago.

Q. Well, it was all previous—

A. Twenty years ago.

Q. How?

A. Twenty years ago, I suppose.

Q. Twenty years previous to the time you handed in Plaintiff's Exhibit 4?

A. Yes, sir.

Q. Did you make any comment in that Plaintiff's Exhibit 4 concerning the possibility of oxidation of paraffin, the acidic possibilities?

A. I did not think it would oxidize. I did not think it was in there long enough to oxidize. I did not know that was a factor.

Q. Do you know how long it was in there?

A. I was told two hours.

Q. From the one day experience that you had at the Ex-Cell-O factory watching the operation of the machine and also your morning at the Risdon Dairies and then your conference with Dr. Vaughn and Mr. Palmer and Dr. Meater, as the result of those three check-ups, did you see anything which then appeared to you to present 1898 a public health problem concerning the use of this paper milk container?

A. No, sir.

Q. Did you ever visit the Detroit Sulphite Paper and Pulp Company?

A. No, sir.

Q. Did you at any time during this month that you did this work for Mr. Scott or the Ex-Cell-O Corporation request any money to go and visit a paper mill?

A. No, sir.

Q. You did not consider it necessary at that time, did you?

A. No, sir.

Q. Did anything that Dr. Bundesen uttered in the conversation with you in December, 1937, change your opinion about the suitability of the Pure-Pak container for the sale of milk?

A. No, sir.

Q. You still believed that these Pure-Pak containers presented no public health hazard after your conference with Dr. Bundesen?

A. Yes.

Q. Do public health standards, even of the most stringent type, for milk, require absolute sterility of the milk container?

A. No, sir.

Q. Then sterility or freedom from bacteria is a 1899 matter of degree, isn't that true?

A. Yes.

Q. Is the United States Public Health Service model ordinance and code generally considered a reasonable standard for milk sanitation?

A. Yes.

Q. And safe?

A. Reasonable and safe standard for milk sanitation, Doctor?

A. Yes, sir.

Q. The reason that the city of Chicago Board of Health is working on a revision of its ordinance is that, if approved by the city council of the city of Chicago, the city will continue to then be on the approved list of the United States Public Health Service, isn't that true?

A. I think so.

Q. Is it not a fact that the approval of the United States Public Health Service is accepted by all of the agencies of the federal government, in lieu of an inspection into things like interstate commerce, where the Interstate Commerce Commission had jurisdiction, and air travel, over which the Civil Aeronautics Authority has jurisdiction?

A. I could not answer that question. I do not know.

Q. Have you had occasion to take a plane ride 1900 in the last two years, from here to Philadelphia or New York?

A. No, sir.

Q. What?

A. No, sir.

Q. When you went attending the depositions you went by train?

A. Sure.

Q. Do you know whether or not, Doctor, they use paper milk bottles in the airplanes, on traveling to the east?

A. I do not know.

Q. What is that?

A. I do not know.

Q. Did you ever investigate that?

A. No, sir.

Q. You went on the train?

A. Yes.

Q. Is it not true that milk packed and delivered in paper bottles is used on the New York Central Railroad, which is subject to the jurisdiction of the Interstate Commerce Commission?

Mr. Schaefer: I object to that.

The Master: Sustained.

Mr. Gariepy: Q. Did you notice, Doctor, any use of the paper bottle on the New York Central Railroad on this trip?

Mr. Schaefer: I object to that.

The Witness: A. No.

1901 Mr. Gariepy: He says he did not, Mr. Schaefer, so it is all right.

Mr. Schaefer: That doesn't make any difference. It is still objectionable.

The Master: Go ahead.

Mr. Gariepy: Q. You are a member of the Board of Health now?

A. Yes.

Q. Don't you consider it your duty to consider the extensibility of the use of paper containers on carriers?

A. No.

Q. In hospitals?

A. No.

Q. For children and the sick and so on?

A. No.

Q. You don't consider that necessary?

A. No.

Q. Doctor, if the control of milk is an ever-changing problem, as you testified on direct examination, is not the experience of public health authorities throughout the country—and I am referring to public health authorities of cities—to be considered in determining whether or not the paper container presents a public health hazard?

A. Yes, possibly it is, yes.

Q. But you made no investigation?

A. No, sir.

1902 Q. Are you the advisor of the Board of Health on this point?

A. No, I don't think so.

Q. Who is?

A. I don't know.

Q. From the selfish standpoint of a mill operator making paper board intended for milk containers, is it not desirable for him to have healthy logs?

A. Yes.

Q. I think you mentioned moss on these logs and a cinder bed.

A. Yes.

Q. Is it desirable for him to clean out pitch pockets?

A. Yes.

Q. Regardless of whether he uses your cinder bed that you mention, is it desirable for him to keep the logs, whether bottom or top, free from whiskers of mould, as you put it?

A. Yes, sir.

The Master: Off the record.

(Discussion had off the record.)

Mr. Gariepy: Let me ask the witness this question.

Q. Doctor, do you know the mills that are making paper board for milk bottles today that have logs that have mould and whiskers on them and that are seated or allowed to rest on wet ground, and so on?

1903 A. No, I do not.

Q. Do you know of any mills that are making paper board that permit employees to work there where they do not have methods and means for keeping their hands clean, so as not to soil the paper board?

A. I don't know, no, sir.

The Master: Q. Do you know one way or the other?

A. No. I am not familiar with enough mills, Master, to draw comparisons.

Mr. Gariepy: Q. Is it not a fact, Doctor, that paper board from pulp manufactured by the chemical process would have to be sterilized by the time it reaches the calender stack, and if any of the logs have not been healthy, logs out of which this pulp is made, and if any pitch pockets have not been removed from these logs, or if the logs have not been kept dry or if the broke or trim you referred to yesterday that is being used sometime that in the manufacturing had been permitted to fall on the floor, that this pulp would be sterilized in the process?

A. In which process?

Q. Going through the mill.

The Master: You mean the chemical process?

Mr. Gariepy: The chemical process.

1904 The Witness: A. The chemical process or the other process?

Mr. Gariepy: Q. The chemical process.

A. The chemical process, yes.

The Master: Q. And to that extent you would say that is a sort of a self-purifying procedure?

A. Where it is heated in alkali, under high pressure and temperature.

Q. I say, if any bacteria during the process has gotten into the material, the rest of the process will tend to remove or destroy those bacteria?

A. Yes. But the great danger is when you have those logs around, having them come into the mill on conveyors, handled by the men, getting on the floor and in the air, you have got spores of mould that get on the shoes of the men, and they track them in the plant, and you get them into the pulp after it is clean. You get contamination in the pulp from spores brought in from a wood pile. That is a great danger.

Mr. Gariepy: Q. Will you recite one instance that you know of where the spores have gotten into the paper board in the mill by reason of the men tracking about there and so on?

A. Why, no. It is just common knowledge that 1905 those things do take place.

Q. You do not know the answer to that, do you?

A. I know of spores being transmitted through laboratories and through hallways and medical schools and office buildings, and the same thing could take place in a paper mill.

Q. And in a glass bottle dairy?

A. Yes, in any dairy.

Q. Do you know of any paper manufacturer making paper for milk bottles that is using chip at this time?

A. In what respect using chip?

Q. In the manufacture of this board.

A. For milk bottles?

Q. Yes.

A. No.

Q. It is easy to determine whether or not chip has been used in the manufacture of this board, is it not?

A. Yes.

Q. How would you determine it?

A. By chemical analysis, by staining the board.

Q. You could take it right here in the city of Chicago and do it, couldn't you?

A. You could disintegrate the board and use stains. You can tell the fibre, the amount of cooking and how many times it has been cooked and various things, from the stains that the paper chemist uses.

Q. You could do that right in the laboratory of the Board of Health here in the city?

A. Yes. It is a very acceptable method.

Q. Is it not a fact that reused waste paper or chip contains inks which discolor the paper and give it a greyish cast?

A. No.

The Master: Q. Doesn't it have a tendency to sort of blotch the paper?

A. Yes, it does, Master, providing you use chip on the outside, but these people who use chip board cover it with a virgin pulp, and what you have is a virgin pulp layer on both sides, with chip in the middle. That is common practice of those who use chip for that purpose.

Mr. Gariepy: Q. Then you can see it by trying it?

A. You can't see it without staining.

Q. You said those people that use chip in the board. Name some of those paper companies that are making paper board for milk containers that do use chip in it.

A. I don't know of any of them making paper containers that use chip.

Q. Have you performed any tests to ascertain the amount of chip in a paper board?

A. No, sir.

Q. You testified yesterday that chip contains much bacteria. How do you know this?

A. I have disintegrated the board that contained chip.

Q. When did you do that?

A. I did that in 1938.

Q. And this board containing chip contains more bacteria than board made out of the virgin spruce pulp, doesn't it?

A. Yes.

Q. Then this shows, Doctor, to you, doesn't it, that there are tests that you are willing to rely on, that indicate the amount of the bacteria in the paper?

A. They are the best tests we have, yes. We have to rely on them.

Q. Wouldn't it be reliable enough for you to form a judgment and testify about it?

A. Yes.

Q. If paper is manufactured with polluted water supply, will any harmful bacteria survive the drying rolls, leaving out of consideration the calendering operation of the mill?

1908 A. Yes, I think they would.

Q. Have you ever had any experience finding it so?

A. I have found bacteria.

Q. When?

A. In paper.

Q. When?

A. In 1938, that have come from the river.

Q. What river?

A. Oswego River.

Q. Did you ever get any paper board from Cherry River or from Ex-Cell-O or American Can that had that in it?

A. They have bacteria of the same kind, yes.

Q. Did you get some like it?

A. Yes.

Q. When did you get paper board from Ex-Cell-O or from American Can, used for paper milk bottles, that had this same kind of bacteria in, that you referred to, in 1938?

A. In the spring of 1938, Dr. Fitzgerald sent them to me from the American Can, and I got some from Mr. Scott from the—they were some of the package that he had sent in to me.

Q. Did you ever report that finding and that result to these two men?

A. No.

Q. You didn't testify to that on direct, did you, Doctor?

A. Well, bacteria in paper—

1909 Q. No, no, Doctor, you did not testify to that on direct, did you?

Mr. Schaefer: I object to that.

The Master: The record will show.

Mr. Gariepy: Q. What part of the paper does the calendering operation apply to, Doctor?

A. The surface.

Q. And what does it do to the surface?

A. Shines it, gives it a shiny, hard gloss to the surface of the paper, on both sides.

Q. Does it make it impervious to bacteria from the air or not?

A. No, I would not say impervious, no.

Mr. Gariepy: Do you want to go ahead, Master? I have got at least an hour or an hour and a half more, and it is now 12:33.

The Master: We might as well meet again at two o'clock, then.

Whereupon, a recess was taken to 2 o'clock p. m. of the same day, Friday, October 13, 1939.

1910

• • • (Caption—) • • •

• Friday, October 13, 1939,
2 o'clock p. m.

Met, pursuant to recess.

Present:

Mr. Gariepy,
Mr. Rall,
Mr. Schaefer,
Mr. Horan.

1910 The Master: You may proceed.

LLOYD ARNOLD, called as a witness on behalf of the defendants, having been heretofore duly sworn, resumed the stand and testified further as follows:

Cross-Examination by Mr. Gariepy (Continued).

Q. Doctor, you testified on direct examination with regard to ice cream in paper containers, that you had control or the Board of Health had control of what went into the ice cream, is that correct?

A. Yes.

Q. You also have control of the quality of the milk in paper containers, do you not?

A. We don't have milk in paper containers.

Q. Well, places that permit the use of milk in paper containers have control of the milk, don't they?

A. I think so.

Q. Is not that control comparable to the control you have of the ingredients that go into ice cream that is sold in the city?

A. Yes.

Q. And when the ice cream is put in those paper containers that you referred to, you said it was frozen 1911 and therefore the possibility of contamination was not so great?

A. Yes.

Q. Does not that ice cream melt within a short time after it is put in the container and taken home from the drug store?

A. It might. It softens, not melts.

Q. And when it softens does not that bridge you referred to exist between the paper carton side and the melted ice cream?

A. I don't think to the same extent.

Q. There is a bridge there?

A. Ice cream is viscous. It is heavy.

Q. There is a bridge there, isn't there?

A. What?

Q. A bridge?

A. No, I wouldn't consider it a bridge in the sense of an aqueous bridge.

Q. Doctor, are you a pediatrician?

A. No, sir.

Q. Are you a gastro-intestinal expert?

A. I have done considerable work on the gastro-intestinal tract.

Q. Have you done considerable work on the gastro-intestinal tract of infants?

A. Yes, sir.

Q. Have you in your experience as a gastro-intestinal doctor or expert ever found any occasion or inci- 1911-A dent, rather, where a child was afflicted or diseased by reason of the swallowing of paraffin?

A. No, sir.

Q. Have you ever had any experience or do you know of any experience of anyone, or have you ever read of the experience of anyone where spicules of paraffin were found in the intestinal tract of a child?

A. I do not recall any, no, sir.

Q. Or of an aged person?

A. I do not recall any.

Q. Or from the drinking of milk in paper containers?

A. No, sir.

Q. The word "paraffin" itself is a combination of two words, two Latin words, is that right?

A. I don't remember.

Q. "Parum" and "affinis," is that right?

A. I don't know. I couldn't say. I am not versed well enough in languages to dissect a word.

Q. You testified further on direct, Doctor, that oysters used in paper containers, in your opinion, did not present a health problem, because the oysters are usually cooked, is that right?

A. Yes, sir.

Q. Are all oysters sold in paper containers cooked?

1912 A. I don't know. I think the most of them are. I think the majority are.

Q. You know that a lot of people eat oysters raw and they have oyster cocktails.

A. I thought they were shelled oysters.

Q. You know they have oyster cocktails, that you can put in a cocktail glass?

A. Yes.

Q. With some red pepper and some seasoning.

A. You put it in an alcohol solution, then.

Q. And you can buy those same oysters in paper containers, can you not, Doctor?

A. I presume so.

Q. Now, if there is any contamination at all, Doctor, how long a period of time must elapse before the contamination will set in, or is it momentary?

A. I hardly think it is momentary.

Q. How long a period of time must elapse, then, before such contamination from the use of the paper container for oysters would set in?

A. I have never determined that.

Q. Do you know of anyone who has?

A. No, sir, I do not.

Q. Do you know of anyone whoever used or secured oysters in paper containers who contracted disease from the paper container?

1913 A. Not to my knowledge, no, sir.

Q. Is it not a fact, Doctor, that dry air tends to kill non-spore forming bacteria?

A. Yes, sir.

Q. Is it not true, Doctor, that any contamination from water used in paper mills in the calendering process or from cold rolls, which you described on your direct examination, is a surface contamination and not a contamination in the body of the fibre board itself?

A. Yes, sir.

Q. That is also true of contamination resulting from the handling of the paper manually in the mill, is it not?

A. Yes, sir.

Q. And from the handling at the converting plant?

A. Yes, sir.

Q. You consider, do you not, that the paraffining operation, has some bactericidal effect, do you not?

A. Yes, sir.

Q. If the containers before being paraffined are essentially sterile, then the bactericidal effect of the paraffin operation is relatively unimportant from a public health standpoint, is it not?

A. It depends on what you mean by relatively sterile.

1914 Q. Well, as sterility is known in the industry and as regards public health, as sterility is known among public health officials.

A. Sterility means the absence of all bacteria.

Q. Is there such a thing known in the milk industry as absolute sterility in containers?

A. No.

Q. With regard to this manual handling and this manual contamination, is this surface or manual contamination easier or more difficult to discover than the contamination in the interior of the paper board?

A. I think they are both about the same. I do not believe there will be a great deal of difference in the method of detection.

Q. Is it not a fact, Doctor, that the number of live bacteria decreases with time on paper board?

A. Yes.

Q. How long, in your opinion, would a non-spore forming bacteria live on a dry surface of paper containing, we will say, five per cent moisture?

A. Depending in what medium the bacteria was deposited.

Q. Suppose it is deposited in no medium; just placed on the board?

A. I don't see how you could do that.

Q. You could not do it?

A. It is impossible.

1915 The Master: Q. What is impossible?

A. For a bacterium to be deposited on the surface of a paper board without being suspended, adhering to something, just a single bacterium by itself. I don't know how we could do that. You would have to put it in water or

Q. Could not it remain on the board?

A. It might remain on the board, but it would be mixed up with something, from the source of it, either from the soil, with a little dirt or dust particle, or moisture.

Q. Let us say you put a colony of bacteria on the outside of the paper board.

A. That would last for days, and certain weeks.

Q. The paper board contains five per cent of moisture.

A. I would say it would last in terms of days or weeks.

Mr. Garipey: Q. Does that answer apply to non-spore forming bacteria?

A. Yes, sir.

Q. Have you ever tried it?

A. Yes, sir.

Q. When?

A. In 1938, the spring of 1938, with the disinfecting power of warm paraffin or hot paraffin.

Q. You said on direct examination that a dry surface kills bacteria by desiccation. How do you account for
1916 the greater bactericidal effect of paraffin on wet paper than dry?

A. Because of the heat. When you heat water, you get a very penetrating substance that penetrates the cells and destroys them. That is the influence of moist heat on bacteria. It is very detrimental to bacteria.

The Master: Q. What is the temperature at which bacteria would die?

A. In moist heat?

Q. Take them both ways. A Bacterial death is always in relation to temperature and time. Boiling water will kill most bacteria, non-spore bearing.

Q. What temperature is that?

A. That is 100 centigrade or 212 Fahrenheit. It will kill them in five minutes, five to ten minutes. Usually five minutes boiling will destroy most of the non-spore bearing bacteria.

Q. What dry heat would be required?

A. 100 centigrade of moist heat takes about 160 of dry heat, for about an hour or an hour and a half, to do the same thing.

Mr. Gariepy: Q. Is it your opinion, Doctor, that the results of Dr. Prucha's experiments on the self-1917-8 purification of paper are false or misleading?

A. No, I don't think they are either false or misleading.

Q. Is it your opinion that the surface of the wet plaque is so much dryer than the surface of the paper which had not been dampened that in the case of wet paper the process of dessication kills more bacteria than on the dry?

A. I didn't get that question.

Mr. Gariepy: Read it, Mr. Golding.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. I still don't understand the question. How could the surface of the wet paper be dry?

Mr. Gariepy: Q. As I understood you to testify on direct examination, the fibres pulled it in and left the bacteria.

A. Yes. That is on the wet plaque.

Q. On the wet paper?

A. Yes, containing bacteria in suspension, in the water.

Q. And on the dry plaque you say it has less bactericidal effect?

A. Yes.

Q. How do you account for that?

A. Because there is not any water to be pulled in.
1919 Then the drying means nothing?

A. Yes, sure, it means something.

Q. What does it mean?

A. You are applying bacteria dry to a dry plaque or wet? Which do you mean?

Q. Dry.

A. If you apply bacteria in a dry state to a dry plaque, you haven't any water, and they survive for a long period of time.

Q. The water keeps them living, or doesn't it?

A. There isn't any water there.

Q. If there is water on the board or in the board, does it keep them living or not, the bacteria?

A. I don't think it has much influence in the ordinary

board, the five per cent water. That is a pretty low water content.

Q. The question to you, Doctor, is, does moisture in the board tend to keep bacteria alive or not?

A. Yes, it will tend to keep them alive.

Q. In your experience and from the experiment you say you performed, how many weeks did non-spore forming bacteria keep alive on the dry board?

A. I didn't run it more than two weeks.

Q. And they kept alive?

A. Yes.

Q. The two weeks?

A. I found them at the end of two weeks. I did not carry it any further.

1920 Q. And did you identify them as the inoculating organisms or not?

A. Yes.

Q. Did you ever write up anything on those experiments from a public health standpoint?

A. No, sir.

Q. Did you make any tests to find out whether this same quality of bacteria lasts longer on glass than on paper?

A. No, I did not.

Q. Assuming that a paraffin bath is heated to a temperature of 185 degrees, is changed every two or three hours, do you have an opinion as to whether the paraffin would oxidize sufficiently to cause any acids which would be harmful to health?

A. Is the paraffin bath completely changed?

Q. Yes.

A. No, if there was a complete change.

Q. What experiments have you performed, Doctor, to determine whether any acids in paraffin are harmful?

A. None.

Q. Is it not a fact that milk has more acidity than any of the acids shown by Mr. Martinek in his experiments here yesterday?

A. Acidity, yes.

Q. And are these acids organic?

A. Yes, sir.

1921 Q. And are these acids organic in the oxidation of paraffin?

A. Yes, there is a variety of organic acids there.

Q. Let us assume that enough oxidation in a paraffin

bath is made to form acids of the maximum strength testified to by Mr. Martinek yesterday, and assume that this paper container is immersed in the paraffin bath; then assume it is cooled afterwards, until the paraffin is hard. In what form would the acid, if any, appear on the interior of the carton?

A. In the concentration that it is in the paraffin and on the surface of the paraffin exposed, according to the surface exposure of the paraffin and the amount of acid contained.

Q. Is it solid or liquid?

A. It is solid, with the paraffin.

Q. Did you mean on direct examination, Doctor, to say that if the interior of a quart of milk contains nothing of the solidified acidic substance, enough of this solidified acidic substance would get into the milk to make a health hazard?

A. What is that question?

Mr. Gariepy: Read it.

(Record read as above recorded.)

1922. The Witness: A. Those substances are soluble in milk and water.

Mr. Gariepy: Q. Would enough of them get in there to present a health hazard?

A. I don't know. They would be adulterants to the milk, but I don't know the toxicity of those adulterants.

Q. Did you perform any experiments to ascertain that, Doctor?

A. No, sir.

Q. Do you know of anyone that has?

A. Not to my knowledge.

Q. Is it not a fact that this would have to chip off in order to present any problem at all?

A. No, I don't think so.

Q. Staying right on the board surface itself presents a health hazard, is that correct?

A. Those decomposition products of paraffin are acids of various types and they are unsaturated acids, that is, they are altered paraffin. They are decomposition products of paraffin.

Q. Are not they weak organic acids?

A. They are organic acids and they are irritating organic acids and they are not the same organic acids as developed in the bacteria of milk.

1923 Q. Do you know of anyone who has ever suffered any illness or irritation by reason of these acids being found in a paper milk bottle?

A. No.

Q. Have you ever heard of anyone like that?

A. No.

Q. Have you ever heard of anyone becoming ill by reason of oxidation of paraffin used in a paper milk bottle?

A. No.

Q. Did you make any experiments to ascertain the amount of the adhesives that come in contact with the milk in a Pure-Pak container?

A. No.

Q. Did you perform any experiments or experimental tests of the quality of these adhesives used on a Pure-Pak container or paper milk bottle?

A. I have of paper milk bottles, but not of the Pure-Pak type.

Q. When did you do that, Doctor?

A. In the summer of 1938.

Q. You determined that chemically, did you?

A. Well, no, bacteriologically.

Q. How?

A. By cultiure.

Q. Do you consider these adhesives that are found on this container harmless or not? I am talking about
1924 being harmless to public health.

A. No, I would not say they were harmless, no.

Q. Do you know of anyone who has become ill or do you know of any instance where disease has been created or spread by reason of the adhesives used on paper milk bottles?

A. No, sir.

Q. Do you ever perform or cause to be performed for the Board of Health of Chicago any test to determine whether the adhesives used in the Pure-Pak container get into the milk?

A. No, sir.

Q. Did you test the adhesives, Doctor, on the side seams of the paper milk bottle?

A. Yes.

Q. And on the bottom seal of the paper milk bottle?

A. Yes.

Q. Both could be tested bacteriologically, as you put it, rather than chemically, is that right?

A. I tested the adhesive as it was being applied in the molten state, obtained the sample and tested the adhesive as to its bacteriological content.

Q. As I understand, Doctor, you never performed any tests on the adhesive on the Pure-Pak container?

A. No, sir.

1925 Q. Do you know of any incident or have you ever heard of any experience of anyone or of any health official with regard to lead in the ink used on the outside of the paper container coming into the milk?

A. No, sir.

Q. Have you ever heard of anyone becoming ill or sick by reason of the printing on the outside of the container?

A. No, sir.

Q. You were here when Mr. Fisher of the Gardner-Richardson Company was testifying, were you not?

A. Yes.

Q. Do you recall his tearing the paper board blank to show the number of layers of paper, as to whether the ink penetrated or not?

A. Yes.

Q. You could see by the tearing of that paper blank how far the ink went, couldn't you, Doctor?

A. I think so.

Q. Did you ever measure this amount of offset that you referred to on your direct examination and said came on to the inside of the paper container?

A. That is so variable in various types of containers and at various times. It is not uniform.

Q. Did you ever measure it, was the question?

1926 A. No, I never have measured it.

Q. The amount of it?

A. No.

Q. Is it not a fact that the amount, if any, is so slight that it cannot be measured?

A. No, I don't think so. You can measure it. You can see it and you can obtain it and measure it, if you want to measure it.

Q. In the spring of 1938 or the summer of 1938, did you perform any experiments to ascertain the amount and the effect of this offset on milk in a paper container?

A. No, sir.

Q. Have you conducted any investigation to ascertain

the presence of offset in Pure-Pak containers used by the plaintiff here?

A. No, sir.

Q. Is it not a fact, from your observation, Doctor, here at the trial and the exhibition of these paper blanks, that if any offset occurs it occurs at a point or place on the blank less likely to chip and crack?

A. I don't think so, no.

Q. There is not any printing on the corners, is there?

A. No.

1927 Q. The printing is on the flat surface, on the gable roof and on the sides, is it not?

A. It depends on the way the blanks are stacked as to where the offset is.

Q. Did you observe any time in here with any blanks or with Plaintiff's Exhibit 2, which was the container we had, any offsets on the corners, where there was creasing or cracking or fracture?

A. I do not recall that particular container.

Q. Doctor, does this offset have anything to do with the matter of a good job of paraffining or proper paraffining, or not?

A. I don't think it influences that.

Q. Did you ever measure the amount of metal in the offset on a paper bottle?

A. No, sir.

Q. Have you performed any test to determine whether any metal gets into the milk from the offset?

A. No, sir.

Q. Or are there tests to determine that?

A. I think it could be determined, yes.

Q. But you have not done so?

A. No, sir, I have not.

Q. What is the largest possible amount in any standard measurement which you are able to give us of the metal which could get into a quart of milk from the worst job of offsetting that you have ever seen on the inside of a paper milk bottle?

A. I could not answer that.

Q. You testified on direct examination that the lead in this offset presented a health problem.

A. It does. It contains lead.

Q. But you never measured the milk or the amount of offset or the lead in the offset?

A. No. But lead is poisonous and it is adulterant to milk.

Q. But you don't know whether it gets into the milk or not from the offset, from the printing.

A. No, but there is a possibility of it.

The Master: Q. When you say it presents a health problem, do you mean there is actually a danger after the problem has been solved, or what do you mean?

A. I mean that there is a health hazard there. Hazard should be the word, Master, instead of problem.

Q. You mean there is a question there as to which there should be some attempt to solve?

A. Yes, there should be some attempt to solve. It certainly presents, from my knowledge of public health and bacteria and chemistry, a health hazard. It is something that is potentially harmful to health.

Q. Although you do not know the answer in a 1929 particular case?

A. I cannot give you figures. I do not know the methods well enough to determine the chemical reaction.

Mr. Gariepy: Q. Have you made any effort to ascertain from other health authorities where the paper milk bottle is being used what their experience has been with regard to this health hazard?

A. No, sir.

Q. Whether they found it real, or just a conjecture?

A. No, sir.

Q. You still want the Master to believe that the possibility of metal poisoning is present in the case of the use of the paper milk container because of the possibility that the offset would not be properly sealed with the paraffin and escapes into the milk, is that it?

A. Lead is poisonous.

Q. No, answer my question. Do you want the Master to believe that?

A. Yes, I do.

The Master: Let us get this straight.

Q. Is your department concerned only with health, or also with the taste, for instance, of milk, and other considerations?

A. Yes, we are concerned with the taste of milk, Master.

1930 The Master: What I am trying to get at, Mr. Gariepy, is whether your position is that it would

be unobjectionable if milk should contain a little lead and a little paraffin and a little something else, which it does not contain, we will say, in glass bottles.

Mr. Gariepy: No, that is not our position. Our position is that it is absurd to contend that there is lead in the offset or in the inks used and that that lead gets through the five layers of board into the milk or has at any time since paper containers have been used by public health officials.

The Master: What I would like to find out is this. You see, you are asking question now to bring out whether there is really any danger.

Mr. Gariepy: Real danger.

The Master: To health.

Mr. Gariepy: Yes.

The Master: Now, I am asking you if in your view it is unobjectionable, if there is not any actual danger, if there might be a trace of lead or might be some paraffin or might be some of these other things in the milk?

Mr. Gariepy: Our position on the lead conjecture is that it is absurd, and if any lead should get through 1931 the five layers of board into the milk, such an infinitesimal amount would get in there as to not present any health problem at all.

The Master: I thought the Doctor's testimony the other day was not that the lead got through the five layers, but that the lead adhered to the underside of the board above, the one on which the printing had been done.

Mr. Gariepy: I asked him on cross here whether he knew of any instance where this offset on the inside, as he put it on direct, on the inside of the board, presented any problem concerning illness or sickness at all to persons by reason of that.

The Master: Now, I am going one step further. I say, let us assume that there is not enough lead and there is not enough paraffin that gets into the milk to cause a danger to health. Is it still objectionable on the ground that you may possibly get a foreign taste into the milk or you may get something in the milk that should not be there? I assume that the Board of Health concerns itself not only with things that may cause an injury to health, but also with anything that might get into the milk that should not get in.

Mr. Gariepy: Palatable or unpalatable?

1932 The Master: Palatable, or whether it appeals to the taste of people, whether they like to have anything in there, whether there is something in there or not, according to their likes and dislikes.

The Witness: Milk is so essential for growing children that anything that will off-flavor the milk will decrease the consumption. That of itself will act as a factor in increasing illness and retarding growth and so forth. The taste of milk is an important factor and a public health consideration.

Mr. Gariepy: Q. Doctor, do you know of any experience in the use of paper bottles by any of the health officials to show that the amount of offset affects the flavor or the taste of the milk?

A. No.

Q. Have you ever read of any such thing in the reports of milk sanitarians and from commissioners of health concerning experiments, or from bacteriologists, on this?

A. No, sir.

Q. What in your opinion, Doctor, is the largest amount of lead that could get into the milk from the worst job of offsetting, on the inside of the paper container, that you ever saw?

1933 A. I don't know.

Mr. Schaefer: That question has been asked and answered.

Mr. Gariepy: He said he doesn't know.

The Master: It has been answered again, then.

Mr. Gariepy: Q. Why do you say then, Doctor, on direct examination, that this presents a health hazard?

A. Because it is lead, and lead is always a health hazard.

Q. That is just a red flag?

A. Always, yes, sir.

Q. And that is true even though you have no experiments to support your conclusions in here, and there are no statistics on the fact?

A. Yes, sir.

The Master: Q. Can you conceive of a case where enough lead could get into the inside of the container to cause any health hazard?

A. Yes, sir. If that lead was constantly—if it was a young baby and every feeding contained a little lead, I could very readily see that. Lead has an accumulating

action, always. It certainly should not be ignored, and I would consider it a health hazard.

Mr. Gariepy: Q. Doctor, they feed babies ice cream when they get about seven or eight months old, don't 1934 they?

A. At times.

Q. And the ice cream container would have printing and the same type of printing and the same kind of lead that a paper container would have?

A. No.

Q. They use different types of ink?

A. They are made entirely different. They are a nest-style container, and nest-style containers are not offsetters. You cannot offset them. They are not printed in a way to offset.

Q. They are printed flat, aren't they?

A. Yes.

Q. You have seen these flat ice cream containers, with a little wire tab on them, or with a little white cord, haven't you?

A. Yes.

Q. And when they are printed flat, then the occasion for the offset will arise, will it not?

A. No. The print in use there is of a much different type than you use on the milk container. It is a different ink. It does not stand out as well, and it has more dye in it. The decoration and the whole printing of the nest-styling is a different process than that of the milk container.

1935 Q. What about the printing and the quality of the ink that is used on other food containers, such as cheese and butter and so on? Is that a different formula, too?

A. No, I think that they are about the same.

Q. You heard Mr. Taylor testify, from the Hilton-Davis Company here, that they used the same formula as on other products and liquids, didn't you?

A. Yes.

Q. You believe that testimony to be true?

A. Yes.

Mr. Schaefer: I move to strike the last question and answer.

The Master: Yes, it may be stricken as immaterial.

Mr. Gariepy: Q. If this paper milk container, Doctor,

is essentially or substantially sterile, as sterility is known among milk sanitarians, then the lack of paraffin at a particular point is not a public health hazard, is it?

A. Yes.

Q. Why?

A. Because practically sterile does not mean that it is free of bacteria, and it would have disease producing bacteria and still be practically sterile. It either does 1936 not have them or it does have them, and I would consider it a health hazard.

Q. Have you any experience where you found non-spore forming bacteria from those portions where the paraffin did not completely cover?

A. I have found it in disintegrating that area, yes.

Q. You did?

A. Yes.

Q. When did you do that?

A. In 1938.

Q. What time in 1938?

A. Oh, from May to December.

Q. The fact that you found bacteria in this area or this portion that was not completely paraffined, you say that that presents this health problem, because then there is a liquid bridge between the milk and this portion, and the bacteria will cross over?

A. It is possible, yes.

Q. You did not examine the milk to find out the amount, as I understood you to say this morning?

A. No, sir.

Q. Would not the amount of bacteria be important?

A. They grow luxuriantly in milk.

Q. No. Would not the amount of bacteria be important?

A. No.

Q. One bacteria or one colony would be sufficient?

A. One typhoid bacteria can cause a case of typhoid fever, if it gets into the milk.

1937 Q. Did you ever find any typhoid bacteria on any paper container board?

A. No.

Q. At any time?

A. No, sir.

Q. Now, this point you brought out, Doctor, concerning milk exerting pressure on the cap—you remember that?

A. Yes.

Q. Would there not be considerable pressure on the cap if the bottle of milk were turned upside down?

A. Yes.

Q. And how would that pressure differ, if any, from the fact that the milk is turned upside down in the paper container?

A. The area is so small. That would be one factor.

The Master: Q. The area is so small in what?

A. If the milk bottle is turned upside down and the milk presses against the cap.

Q. In the glass bottle?

A. Yes. The paper cap is a very small area, as compared to one that is all milk. A milk bottle is not upside down very much or very long.

Mr. Garipey: Q. Is there any reason to believe that either bottle would be upside down, one more than the other, the paper or glass?

1938 A. I don't think so.

Q. You stated on direct examination concerning the matter of filtered air coming into the plant.

A. Yes.

Q. The paper board plant.

A. Yes.

Q. Do you know anything about the air at the Cherry River Paper Company?

A. No, sir, I do not.

Q. Would you expect to find air with considerable bacteria in it in that mountainous country?

A. Yes, sir.

Q. You would?

A. Yes, sir.

Q. You never were there?

A. No.

Q. What kind of bacteria would you expect to find in the air coming through at the Cherry River Paper Company mill here at Richmond?

A. I can only speak from experience. I have not been there. But I have had experience in bacterial work in mountain atmosphere. I worked with Professor Zunts at Brussels. I went with Professor Zunts on an expedition to Switzerland, where he was studying certain factors of the air in various altitudes. I was studying the bacteria of the air in those altitudes, and I know it does not differ

much from the bacteria in the air at sea level altitude.
1939 It depends upon the wind and how it whips up bacteria from the soil, from the mountain sides. There may be even more bacteria on a windy mountain side than you find on a plain, where there is less violent wind.

Q. Would you expect to find that same problem with regard to the health hazard in the event that a dairy bottling milk in glass was located in the mountains?

A. Surely.

Q. The same thing?

A. Yes.

Q. There would not be any difference?

A. No.

Q. There wouldn't be any difference?

A. No.

Q. Do these dairies have filters that filter the air in there?

A. No.

Q. Then the air comes through the door and goes over the top of the bottles and over the washing and the rest of it without being filtered?

A. It is not blown through under pressure, as it is in the cooling and artificial ventilation in the other case. There you have a tremendous pressure blowing the air in, to bring out the humidified air, to dry the sheet. It is part of the drying of the sheet of paper being formed.

Q. This bacteria would be expected to be coming in on dust, wouldn't it?

A. Yes.

1940 Q. And this dust would appear on the surface of the paper board, wouldn't it?

A. If it were dust, yes.

Q. Did you ever observe any such condition in Detroit at the Risdon Dairy?

A. I did not examine it from that viewpoint, no.

The Master: I would like to ask a question there that occurs to me.

Q. In the case of the caps of ordinary glass milk bottles, I notice when the cap is taken out of the bottle there is a film of cream attached to the underside of it?

A. Yes.

Q. Does that make any difference in connection with the traveling of bacteria?

A. I don't know, Master. I don't know what influence that would have.

Q. Would you say that bacteria on the inner wall or on the inside of the wall of a paper carton get into the body of the milk or just remain along the sides of the container, where the milk happens to be touching the walls of the container?

A. You mean the bacteria are beneath the paraffin, in the paraffin, or on top of the paraffin?

1941 Q. What I have in mind is this. When you pour milk out, there is a thin film of milk which adheres to the sides of the bottle?

A. Yes.

Q. Now, do the bacteria travel beyond the point where the milk is touching the walls of the container, or do the bacteria go right on into the middle of the milk?

A. Right on into the middle of the milk. They are disseminated.

Q. They do not just stop?

A. Oh no.

Mr. Gariepy: Doctor, we were discussing this morning this matter of bacteria and disease emanating or being traced to glass bottles. Are you acquainted with the article by Armstrong and Parran, published in United States Public Health Service Bulletin in 1927, regarding outbreaks of disease being traced to glass milk bottles?

A. No, sir. I do not recall that article.

Q. Do you know those men?

A. What are the initials?

Q. Armstrong and R. Parran.

The Master: What are Armstrong's initials?

Mr. Gariepy: I haven't got his initials, but it is Thomas Parran instead of R.

1942 Q. Do you know Thomas Parran?

A. Oh, he is the present surgeon general.

Q. Yes.

A. And I think I know Armstrong, too. He is the bacteriologist in the—

Q. But you don't know about this article?

A. I do not recall the article, no, sir.

Q. Doctor, how much lead would be necessary to be taken in daily through milk by a child, what quantity, to present a health problem there?

A. I could not answer that offhand.

Q. Now, with regard to the respiratory secretions that you mentioned upon the paper board, you said they did not dry. Do I understand you to mean that they do not dry out at all?

A. Oh, they dry out, but very slowly.

Q. That is it.

A. Yes, sir.

Q. They still die out, don't they?

A. In time, yes, sir.

Q. Did you ever make any tests on paper board concerning these secretions?

A. No, sir.

Q. Did you ever see any employees in a paper milk bottle plant giving off nasal discharge or coughing upon the containers?

A. I do not recall having seen it, no, sir.

1943 Q. That same health hazard is present in a glass bottle plant, is it not?

A. Yes, sir.

Q. And both possibilities or probabilities depend upon the number of employees?

A. No.

Q. The more people employed about, the more opportunity or chance for these secretions to exist?

A. That would be a factor, yes.

Q. This ink offset, Doctor, can you not determine that ink offset at the dairy itself, when the inspector goes there and looks after the paper board and the material that they are using to contain the milk?

A. Oh, there are so many different types of containers. Some of them are paraffined and completely fabricated and I do not see how you could possibly reach one in a machine going 130 or 140 fillings a minute. I don't see how you could expect them to see that there are any offsets.

Q. There is not any reason why an inspector going into a paper bottling plant cannot pick up the blanks as the operator is standing at the machine, and look at them from time to time, and see the amount of offset, and criticise it, is there?

A. No. The offset will not be uniform. Offset 1944 is an accident.

Q. My question is whether an inspector could not see or observe such a condition?

A. No.

Q. Why?

A. Because there are two milk bottles in common use that are fabricated and paraffined in the plant. You cannot see the offset in those.

Q. You can secure containers from time to time, if you want to inspect them. Samples are sent to Dr. Prucha here and Dr. Orvis in Evanston; you could do that and inspect them, couldn't you?

A. You could inspect those, yes, but you wouldn't know what the next bottle would be.

Q. And you could secure any amount on request, telling them you wanted to inspect their containers, from time to time?

A. And they could send you any containers they desired you to inspect.

Q. Is there any reason why the inspector could not go to the plant and say, "I want to look at the containers here. These containers have too much offset."?

A. No.

Q. There is no reason why they could not do it?

A. No.

Q. And if they thought that amount of offset 1945 might poison children, they could make that complaint, couldn't they?

A. Yes.

Q. And they could stop the offset just as they could stop a dairy whose bacteria count was too high?

A. Yes.

Q. Do you consider these public health officials of cities that use single service containers, for instance, Philadelphia and New York City and San Francisco, possessed of sufficient bacteriological control over the paper milk bottle to protect public health in those cities?

Mr. Schaefer: That is objected to.

Mr. Gariepy: He is a public health expert, Master.

The Master: Q. Have you studied it?

A. Sir?

Q. Have you studied the situations there?

A. No, I am not familiar with the bottles they use, or the conditions or anything about it.

Mr. Gariepy: Q. You don't know whether they have control or not?

A. No, I do not.

Q. If I told you that no disease has emanated or even been traced to the single service container in the cities that have been using them for the past several years, would you say that had sufficient bacteriological control over the container?

A. No, I would not.

Q. Why?

A. Because I do not think you know whether there has been any disease transmitted by a single service container.

Q. Can't they trace that, as well as they can trace it to the glass bottle?

A. No.

Q. They cannot do it?

A. No.

Q. Why not?

A. Because the single service containers are not uniform.

Q. Are the bottles uniform?

A. Much more uniform.

Q. But they are not uniform?

A. No, they are not uniform, but they are under your inspection and you can wash them and clean them to suit yourself. If they are not cleaned and properly disinfected, then the enforcing officer is to blame.

The Master: Q. You are talking about glass bottles?

A. I am talking about glass bottles, yes. On the paper bottle, he has not any control over it.

Mr. Gariepy: Q. He has the rinse test, hasn't he?

A. Yes.

Q. And that is the only test you have on the glass, outside of the inspection?

A. The glass is impermeable.

1947 Q. And you have the disintegration test on the board, which you yourself said this morning you performed?

A. Yes, and I will give you the information on that particular container, and the sample used from that particular container, but it will differ from one container to another, and it will even differ in the same container.

Q. As I understood your direct examination, one of the advantages of the use of the single service container that you recommended to Dr. Bundesen was its use in hospitals?

A. Yes.

Q. Do I understand you to say that even though it has an advantage by being in the hospital, that you would recommend it, even though you do not have control to detect the quality of the board and the sanitary aspects of the container?

A. When I made that recommendation, I did not know the container was porous. I was not aware of that fact.

The Master: Q. That is the only thing?

A. That is the principal thing, Master.

Mr. Gariepy: Q. You said on direct examination, in answer to Mr. Schaefer's question, that all of the dairy equipment, in your opinion, from a public health standpoint, had to be of smooth, impervious surfaces, is 1948 that right?

A. For Grade A milk, yes.

Q. And that is because of the fact that it is being used over and over again, and you want to keep the surfaces clean?

A. Yes.

Q. That does not apply to a single service paper milk bottle then, does it?

A. Yes. We should be able to clean it, or else it should be sterile, or we should be able to disinfect it and convince ourselves that it was clean and harmless.

Q. What would convince you, Doctor?

A. An impermeable surface that I could clean in a dairy, like they clean glass.

Q. Then it would have to be made out of glass; that would be the only thing?

A. No.

Q. What would it be made out of, if it was not made out of glass?

A. It would be made of impermeable material, instead of paraffin.

Q. Name it.

A. Artificial resin.

Q. Do you know of any milk bottles that are being made today out of artificial resin?

A. No. There are caps being made out of it.
1949 Q. Bottles being made out of it?

A. No, no bottles.

Q. Doctor, you testified that you compiled or just assembled this material of George Scott's or of Ex-Cell-O, and you did that just to make out a preliminary report.

Why did you go to Geneva to get an additional check on the paper board from Breed & Sanborn, if you were just going to compile this material?

A. I wanted the material up to date. I wanted to get all the information I could from those two men about the board.

Q. Is that the same reason why you went to the Risdon Dairy, then, to get it up to date?

A. Yes, I wanted to have some first-hand information. I have never seen the Pure-Pak container.

Q. Then it was not just to compile the stuff, but it was to get the last word there was concerning the sanitary aspects and the public health aspects of the single service container in actual operation at the Risdon Dairy, is that it?

A. Yes, from my observation, yes.

Q. And at the Ex-Cell-O Machine Company's plant, where you saw it in operation?

A. Yes.

1950 Q. And the quality of the board as it was actually advanced and used in every day practice in the making of paper milk bottles at Geneva?

A. Yes, sir.

Q. That is right?

A. Yes, sir.

The Master: Q. You say that paraffin is not impermeable?

A. The paraffin container cannot be made impermeable by treating with paraffin.

Q. That is, the bacteria can go through the paraffin coating?

A. Yes, sir. The milk can go through the coating into the board and the bacteria can come from within the board or on the board into the milk.

Mr. Garipey: Q. Doctor, you testified on cross-examination concerning certain paper containers that were sent to you by Ex-Cell-O or George Scott. Which one sent them, the company or George Scott personally?

A. I do not recall.

Q. And how many did he send you, in 1938?

A. There were one or two packages. I think they either had six or twelve complete empty sealed containers to the package. They came to my home, at 5844 Stony Island.

Q. What month was that, Doctor, if you can remember?

A. I do not remember. It was early in 1938, I think.

Q. How did you happen to get these containers
1951 early in 1938, when you were through making this report, Plaintiff's Exhibit 4 here?

A. I don't remember. I did not know what they were for. They sat around for a month at home before I opened them.

Q. You did not have any communication from him?

A. No, sir.

Q. That he was sending them, or you requested them?

A. No, I did not have any communication from him at all.

Q. Was that before February 7, 1938? Early in the year, I think you said.

A. It was early in the year, yes. I don't know whether it was that time or not. It was early in the year, within the first three months. Now, I do not know the date.

Mr. Gariepy: Mr. Golding, will you mark this Exhibit 87 for identification?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit 87 for identification.)

Mr. Gariepy: Q. Doctor, will you look at Plaintiff's Exhibit 87 and see if it will help to refresh your memory as to when you got these containers?

A. No, sir, it does not.

Q. That is your letter to George D. Scott?

1952 A. Yes.

Q. Dated February 7, 1938?

A. Yes, sir.

Q. But whether it was that month or three months afterwards, you cannot tell?

A. I do not associate that with the letter at all, sir.

Q. Why did you request George D. Scott to return this report to you, Doctor?

A. I didn't have a copy. I haven't got a copy of it at all. I did not have a copy. I returned it to him and there was no copy available.

The Master: Q. How many did you prepare originally?

A. One copy.

Q. Didn't you leave one with Dr. Bundesen?

A. I gave the original copy to Dr. Bundesen.

Q. And then the copy you gave to Mr. Scott?

A. Mr. Scott did not have a copy. I only made one copy, and that I gave to Dr. Bundesen.

Q. You mean you made an original and a copy, or just an original?

A. Just an original, with no carbons at all.

Q. And you gave that to Dr. Bundesen?

A. I gave that to Dr. Bundesen.

Q. And he returned it to you?

A. I got it from Dr. Bundesen for Mr. Scott to take to Washington, to see Dr. Parran, and I had requested 1953 Mr. Scott to return it in that letter.

Mr. Gariepy: Q. Was this date, February 7th, 1938, subsequent to your appointment to membership on the Board of Health, or before?

A. No, I was appointed in December 1938.

Q. Two months later?

Mr. Schaefer: Oh no.

The Witness: A. December. That is in February.

Mr. Gariepy: Q. December. This was ten months previous to that?

A. Yes.

Q. Why did you ask him to return the report, Doctor, for which report he paid you \$250 to prepare?

A. It was addressed to Dr. Bundesen. I wanted to give it back to Dr. Bundesen. I asked Dr. Bundesen if I could not take it. I should have made a copy of it then, but I did not.

Q. Don't you know how it got back to George D. Scott's possession?

A. I gave it to him.

Q. You gave it to him?

A. Yes, I gave it to him to take to Washington to show to Dr. Tom Parran.

Q. Did you, on February 7, 1938, believe this report to be a true and honest representation concerning the merits of the single service container?

A. Yes.

1954 Q. The purpose of seeing Breed & Sanborn and Dr. Vaughn and the Risdon Dairies there was to bring yourself up to date, that is right, is it not?

A. To bring me up to date. I know nothing about the Pure-Pak container. It was not to bring me up to date. It was getting some original first-hand information.

Q. What have you done with regard to seeing other public health officials of cities and villages and bacteriologists in these cities and villages using the single service container, since that time?

A. I have not seen them at all.

Q. Would you consider the same rule of conduct to be necessary and the same type of investigation to be necessary to bring you up to date on the thing now?

A. No, I don't think so. I have more information on it now.

Q. That is what you got, you testified to, in the spring of 1938?

A. Yes, sir.

Q. Have you read the articles published by Dr. Prucha and Dr. Paul Tracy concerning the sanitary aspects of the milk bottle?

A. I think I have read all of their publications.

Q. Do you consider those articles as accurately representing the merits of said container?

1955 Mr. Schaefer: Now, that is objected to.

Mr. Gariepy: He is a public health official.

The Master: Are they in evidence?

Mr. Gariepy: Yes. Mr. Schaefer brought out two of Dr. Prucha's reports, one at Louisville and one at another place.

Mr. Schaefer: I don't believe they are in evidence.

Mr. Gariepy: I think you offered them both.

Mr. Schaefer: I think not.

Mr. Gariepy: Q. Well, you read them, did you, Doctor?

A. Yes, sir.

Q. And you are acquainted with the contents of them?

A. Yes.

Q. Do you think they accurately represent the merits, from a public health standpoint, of the single service container?

A. No.

Mr. Schaefer: That is objected to.

Mr. Gariepy: Q. They do not?

A. No.

The Master: He says no.

Mr. Gariepy: Q. Wherein are they false and misleading?

The Master: I think those documents, not being in evidence, do not afford much help to the Court, in determining just what this witness is talking about. That is all a matter of argument. We have all of the 1956 evidence in the record now on both sides and you are just going to go over the whole thing again. I don't know whether it is going to do any good here to question

this witness in what respects he disagrees with those articles. We have the respective contentions in the record now.

Mr. Gariepy: I am just asking what his opinion is as a public health expert.

The Master: He has already testified or he has already told you that he does not agree with it, and now you are going to have him repeat everything he has said up to today.

Mr. Gariepy: No, I don't want him to repeat. I just want to know whether they are false and misleading.

The Master: No, it is just going over the whole thing again. I will sustain the objection.

Mr. Gariepy: Q. Doctor, let us get back to this matter of spicules of paraffin that you mentioned. You mean by spicules, needle-pointed objects, is that correct?

A. Yes.

Q. And that is Webster's dictionary definition of a spicule, is it not?

A. Yes.

Q. When milk is fed to infants, I understood you to say it is generally heated?

1957 A. According to the age of the child.

Q. For the child under one year?

A. Usually, yes.

Q. Would not the needle-point character of this particle of paraffin, this spicule character of it, the melted away?

A. Yes, sir.

Q. Then the dangers from the spicule would be removed by the heating process?

A. It would still be a piece of paraffin.

Q. But it would be removed in the heating process; it would be melted down, dissolved, isn't that so?

The Master: He said that the paraffin would still be there, although the point might not be.

Mr. Gariepy: Q. And that spicule character being dissolved away, the degree of irritation that you said would exist from it getting into the intestinal tract would be lessened somewhat, wouldn't it?

A. I don't think so, no.

Q. It would be just as much as though the spicule was a round particle?

A. In the intestinal tract it would not be as hard as it is outside, in the air, and I do not think it would have the

hazard of puncturing the intestinal tract, but it would be a foreign body in the intestinal tract.

1958 Q. You know that mineral oils are used in the intestinal tract, don't you, and prescribed by physicians?

A. At times, yes, and under certain conditions.

Q. Do any of these mineral oils contain any of the component parts of paraffin?

A. They contain very similar products to paraffin.

Q. The mineral oils are suggested because of the fact they are easier on the intestinal tract, and cause less wear and tear, is that right?

A. No, I wouldn't say that.

Q. Why?

A. Because that isn't true. You give mineral oils for a certain purpose. You use several types of cathartics. Mineral oil is one of them. It depends on what you want done. It depends on the patient, the disease, the age, as to what you want to do.

Q. Is not mineral oil prescribed after operations at a hospital, say, at the Cook County Hospital here?

A. I suppose it is, at times.

Q. Do you know that as a fact?

A. No, I do not know that as a fact.

Q. Would you be surprised if I told you so?

A. No, I would not.

The Master: Q. Do they give mineral oil to children under one year of age?

A. At times, yes. If they are constipated.

1959 Mr. Gariepy: Q. Will you point out to the Master with a piece of paper and a pencil how big a milligram of the spicule of that paraffin would be, Doctor?

A. It would depend on the thickness of it.

Q. What size thickness did you have in mind when you testified on direct that it might be injurious to infants, in the intestinal tract, or to a senile person?

A. I would say a mass containing several milligrams of paraffin. It would be, I suppose—

The Master: Q. The size of a pinhead?

A. Oh, I suppose half as big as a pea, something of that kind. It varies, though, in size and in shape.

Mr. Gariepy: Q. Now, with regard to babies' milk, Doctor, is it not a fact that evaporated milk is most commonly used in feeding babies?

A. It is commonly used.

Q. And in that evaporated milk there is none of this health hazard of spicules of paraffin, is there?

A. I should not think so.

Q. Now, Doctor, did you, in any of your observations ever see any harmful amount of bacteria in the felts in a paper mill?

A. You mean harmful?

Q. Yes.

A. Yes.

1960 Q. Where?

A. At Sealrite. A large number of bacteria are suspicious, any time you see a large number. There was no disease producing bacteria detected, but there was a high bacterial flora in the felts.

Q. Is this Fulton plant of Sealrite located in the city or in the country?

A. It is located in Fulton, New York.

Q. Is that a small suburb or a highly intensified industrial district?

A. It is a highly intensified industrial district, of, I would say, twenty-five to fifty thousand people.

Q. Did you observe the quality of air that came through the factory there where they are making these containers?

A. Yes.

Q. What quality of air is there?

A. It is just ordinary air, that will bear bacteria, depending upon the wind and meteorological conditions.

Q. Is that filtered air in there?

A. They are filtering it, yes. They began filtering it a few months ago.

Q. Is it not a fact that most of these paper mills are located in the country and out of city districts, so that they can be near their source of raw material?

1961 A. I am not familiar with that.

Q. You don't know?

A. No.

Q. Doctor, this milk that babies take, under one year, cow's milk, not evaporated milk, is usually fed to the baby in a bottle, is it not?

A. Yes, sir.

Q. And the bottle has a nipple on it?

A. Yes, sir.

Q. Is the spicule big enough to go through the hole of that nipple?

A. I think it would be. It could be, yes. It could be too large to go through or it could be small enough to go through.

Q. If it is too large to go through, when she takes off the nipple through the nursing hour, she shakes the bottle out and sterilizes it in the kitchen, as they usually do, dumps it outside and out goes the spicule?

A. Yes.

Mr. Gariepy: That is all.

Mr. Schaefer: One or two questions.

1962 *Redirect Examination by Mr. Schaefer.*

Q. With respect to Dr. Prucha's experiments concerning the self-purification of paper, I understand that you do not question the result of Dr. Prucha's work, but you question the interpretation of that result, is that correct?

A. Yes, sir.

Q. You testified that you advised Dr. Bundesen of the fact that the work which you have done subsequent to the preparation of Plaintiff's Exhibit 4 had caused you to conclude that the paraffin paper container was not satisfactory from a public health point of view. Did you advise anyone else of that fact?

A. Yes, I did.

Q. Who did you advise?

A. I advised Mr. Skinner, the president of Sealrite.

Q. Who else?

A. I advised Mr. Scott, of Ex-Cell-O.

Q. When did you advise Mr. Scott of the Ex-Cell-O Corporation?

A. I think it was in October 1938.

Mr. Schaefer: That is all, Doctor.

1963 *Recross Examination by Mr. Gariepy:*

Q. Doctor, Mr. Schaefer asked you about Dr. Prucha's experiment on the self-purification of paper?

A. Yes, sir.

Q. I show you Plaintiff's Exhibit 46, which purports to be the exhibit dealing with that subject. Those tests, in your opinion, are accurate, are they?

A. Yes, sir.

Q. What interpretation do you place on those tests?

A. I place this interpretation on these tests: After he dipped the plaque, which was two and a half by four and one-half inches, into his bacterial suspension of B-prodigiosis of this concentration, and immediately disintegrated it, he had a seeding on the plaque on the average of 14,000 bacteria. After thirty minutes of repeating that technique and allowing it to dry for thirty minutes, he had 450 bacteria. After sixty minutes and on to twenty-four hours he had fewer bacteria, and in sixty minutes three and two hours zero, and on down. I interpret that at this point—

Mr. Schaefer: What point?

A. At the point of inoculation or immediately after the plaques were dipped into the bacteria suspension, disintegrated, he had moisture on the surface.

1964 Mr. Gariepy: Q. Referring to what?

A. Column 1. He had moisture on the surface, with bacteria on. After thirty minutes there had been sufficient absorption into the paper board and particularly into the edges of the board that are not calendered, as well as through the calendering—there is ten times the rapidity of absorption through the uncalendered edge as there is through the dense, hard shell of the calendered surface. At the end of sixty minutes the fibers had absorbed all the water, and there was nothing definite on the surface for the bacteria.

These bacteria B-prodigiosis, are used very frequently by bacteriologists, because they form red colonies, and you can detect them without much technical difficulty. They will grow rapidly day after day in this artificial medium in the laboratory. They are in a very susceptible state. They have been cultured under ideal conditions and they react more violently to adverse physical chemical conditions than with hardier bacteria that had to survive pus, feces, and so on and so forth.

I think from those two standpoints, lack of hardness of the organisms, but mainly due to the dehydration of 1965 the bacteria, by the water hunger of the cellulose fibers in the board, that that explains the results.

Mr. Gariepy: Q. Doctor, is it not a fact that the wetter the board the more the dehydrating process?

A. No.

Q. No.

A. No. Dehydration from the surface into the board means a water hunger or a deficit of water in the board.

If you have plenty of water in the board, it will not take water from the surface.

Mr. Gariepy: That is all, Doctor.

The Witness: Is that all?

Mr. Schaefer: That is all, sir.

The Master: I want to ask a question along that line.

Q. For instance, there is water inside the board. Isn't that going to dry out some way?

A. No, sir. It is hard to dry it out, because the atmosphere contains more water than is contained in the board, so the board tends to take up water, instead of giving it out. The fibers have a tremendous water hunger.

Q. Then I understand you to say that if there is water once inside the board, it stays there?

A. Yes, sir. If you make board with 8 per cent or 9 per cent water, it will hold that amount of water. It will 1966 not reduce it down to 5. The whole drying operation, which is the most expensive in the paper mill, is for the purpose of getting rid of water artificially, by heat and pressure, to dehydrate the board.

Q. Then you would say after it has been dehydrated down to about 9 per cent, it does not dehydrate after that, when it gets into ordinary room temperature?

A. No. It will tend the opposite way. It will tend to pick it up.

Q. Then you say there is no self-drying of the board?

A. No. It has too great a water hunger.

Mr. Gariepy: Q. Is that just a fiction or pet phrase, would you say, of Dr. Prucha's, or is it just unheard of?

A. What?

Q. This self-drying paper board?

A. No. Simply a different terminology, Dr. Prucha, I understood, calls it self-disinfection.

Q. Self-purification of paper board?

A. Yes.

Q. There is no such thing that you know of, is that right?

A. I wouldn't call it that. I would call it the dehydration of bacteria on the surface, due to water absorption onto the board.

Q. But the water does not purify itself, in time?

1967 A. I don't think it does in that sense, at all.

Q. In what sense does it dry itself?

A. Any bacteria placed on the surface, under ordinary

conditions are placed on the surface suspended in something, in contact with something. Now, it is simply a matter of how tenacious that medium is as compared to the water hunger of the board. In time I think the bacteria will disappear from the surface.

The Master: Q. The bacteria will disappear from the surface?

A. But it would take weeks and months, as compared with the minutes in Dr. Prucha's experiments.

Mr. Gariepy: Q. And your experiments showed it took many weeks or months?

A. I did not test it through.

Mr. Gariepy: That is all, Doctor.

(Witness excused.)

Mr. Schaefer: Mr. Golding, will you mark these Defendants' Exhibits 24, 25, 26 and 27?

(The documents referred to were thereupon marked by the reporter Defendants' Exhibits 24, 25, 26 and 27, respectively, for identification.)

Mr. Schaefer: If the Master please, I now offer in 1968 evidence Defendants' Exhibit 24 for identification, which is a copy of the ordinance and regulations of the City of Chicago and of the Board of Health of the city, pertaining to the production, processing and distribution of milk and milk products.

I also offer Defendants' Exhibit 25, which is a copy of a regulation adopted by the Board of Health on August 6, 1935, concerning the type of milk and cream to be used in the manufacture of butter to be sold in the City of Chicago, and, in substance, requires that the butter be made from cream coming from tuberculin tested cows.

I also offer Defendants' Exhibit 26, which is a copy of a regulation adopted by the Board of Health on November 12, 1935, which is the one to which I alluded previously, requiring that all milk and milk products be served and dispensed to the final consumer only in the original unopened container, as received from the distributor.

I also offer Defendants' Exhibit 27, which is a copy of a resolution adopted by the Board of Health or published by the Board of Health on July 18, 1939, pertaining to the use of the standard nutrient agar prescribed in the sixth edition of the American Public Health Association 1969 Standard Methods of Milk Analysis.

The Master: They may be received.

(Said documents, as above described, so offered and received in evidence, were marked DEFENDANTS' EXHIBITS 24, 25, 26 and 27, and are attached hereto and made a part hereof.)

The Master: Anything further?

Mr. Schaefer: Off the record, please.

(Discussion off the record.)

Mr. Schaefer: If the Master please, I offer in evidence as Defendants' Exhibit 28, a stipulation regarding certain tests to be performed in connection with this case and a copy of the procedures to be employed in following those tests, the original of which is on file in the files of this case, filed June 29, 1939.

The Master: It may be received.

(Said stipulation so offered and received in evidence was marked DEFENDANTS' EXHIBIT 28, and is attached hereto and made a part hereof.)

Mr. Schaefer: Now, if the Master please, I believe there are some of the Defendants' Exhibits which may not have been offered. I have not had an opportunity to check that. I would like now to reoffer all of the Defendants' Exhibits numbering from 1 to 28.

1970 Mr. Gariepy: That puts us on the spot.

The Master: Off the record.

(Discussion off the record.)

The Master: Outside of that do you rest?

Mr. Schaefer: Outside of the fact that I have not yet checked over the exhibits or the record with regard to the exhibits, and outside of the fact that I have not yet prepared objections to the depositions, we rest, yes, sir. I would like to have time to do that checking, however.

The Master: Let the record show that this hearing is adjourned to 2 o'clock P. M. on October 19th.

Whereupon the hearing of the above entitled cause was continued to 2 o'clock P. M. Thursday, October 19, 1939.

1971 • • (Caption) • •

Monday, October 23, 1939,
2:00 o'clock p. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, on behalf of plaintiff.
Mr. Schaefer, Mr. Horan, on behalf of defendants.

1972 The Master: You may proceed.

Mr. Schaefer: I am calling Doctor Bundesen.

Mr. Gariepy: If the Master please, if the reports concerning the nature of this hearing are correct, I now move that the other witnesses, other than the witness who is about to testify, be excluded, and I am referring to other members of the Board of Health of the City of Chicago, and that they be called in the order that they are testifying.

Mr. Schaefer: I have no objection to that, but I do not see the others here.

Mr. Gariepy: Is Doctor Dulak here?

Mr. Horan: No, not in the room.

Mr. Gariepy: They are all in the other room, I understand. All right, thank you.

HERMAN N. BUNDESEN, was called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. Will you state your name, please, Doctor?

A. Bundesen, B-u-n-d-e-s-e-n, Herman Bundesen.

Q. And where do you live, Doctor?

A. 7410 Oglesby avenue, Chicago.

1973 Q. And your occupation?

A. President of the Chicago Board of Health.

Q. How long have you been president of the Board of Health of the City of Chicago?

A. I was first appointed February 1st, 1922, and then served until November, 1927, and then I was again reappointed in March of 1931, up to the present time. How-

ever, during the early years I was Commissioner of Health, and then the Supreme Court ruled that the job of Commissioner of Health was illegal, in the 302nd Illinois, and then the position of president of the Board of Health was created, and I have been president only since the latter part of 1926, I think it is, or 1925.

Q. During the entire period you have been in charge in one capacity or other, of the administrative and technical departments of the Board of Health of the City of Chicago?

A. Since the Board of Health was appointed, under the direction of the Board of Health, yes, sir.

Q. Now, doctor, during the time that you have been president of the Board of Health of the City of Chicago have you had occasion to consider the question of the use of paper containers for the distribution of fresh fluid milk in the city?

1974 A. Application has come before me for permission to use paper containers, yes.

Q. Do you remember when that was, doctor?

A. No, I would not. The records in the Health Department would show all that. It is quite some years ago. I would not know just how long ago that would be. With so many activities I cannot remember.

Q. Since the time when the application was first made have you devoted any time to the consideration of the public health problems, if any, involved in the use of paper containers for the distribution of fresh fluid milk?

A. Well, personally I have not devoted much time to the technical details, but I have referred to the various technical people in the department the matters regarding paper containers and have referred to them the applications and have looked to them for the looking up of the records and making what necessary investigation there was regarding the use of paper containers.

Q. Doctor, in your opinion, is the kind of material used in the manufacture of paper containers a matter of public health significance?

A. Yes, I think it is.

Q. And in your opinion is the kind of board used in a paper mill manufacturing paper board for use in milk
1975 containers of any public health significance?

A. Yes, I think it might be.

Q. And in your opinion, doctor, are the sanitary conditions in a plant where paper board is cut, formed and

printed for use in paper milk containers matters of public health significance?

A. Yes, I think they would be.

Q. In your opinion is the bactericidal effect, if any, of the application of paraffin to paper used in paper milk containers a matter of public health significance?

A. I don't know enough about the technical subject to qualify as an expert on that. I would have to take the advice of our technical men; as I have in the past, on the Board of Health.

Q. In your opinion is the fact that paraffined paper milk containers are uniformly absorbent a matter of public health significance?

A. I do not know that they are uniformly absorbent, and if they were uniformly absorbent—

Q. Assuming they are uniformly absorbent, Doctor, in your opinion is that a matter of public health significance?

A. Yes, it might be.

Q. Will you assume, Doctor, for the purpose of this next question, that undissolved paraffin from paper containers gets into the milk placed in those containers, in quantities varying from one milligram per quart to as high as one hundred and seven milligrams per quart; is that a matter of any public health significance, in your opinion?

A. I would not know the effect of paraffin on the intestinal tract to testify to that as an expert. I know there are many foods that do have paraffin containers and that we do not consider those a health hazard. As to what effect it might have on the intestinal tract, if you are referring to children, a pediatrician would have to testify to that. I would not be able to give the answer on that. I don't know enough about the effect of paraffin, except that in adults I know of no harm that paraffin would do if an adult swallowed some paraffin, if he did not have any pathological condition in the intestinal tract. That is really a medical matter that I would not be competent to answer you intelligently on.

Q. Now, Doctor, as of February 2, 1939, what opinion, if any, did you have as to whether or not, from the point of view of public health, the use of paper containers should be permitted for the distribution of fresh fluid milk?

A. Well, I think that was answered pretty well by the Board of Health in a meeting of about May of this year, when the Board of Health went on record

regarding its attitude as to the use of paper containers, when they passed a resolution that it was the sense of the Board that the use of paper containers might be permitted without attendant hazards to the public health when the principles of certain regulations were carried out, and then the Board at that time passed certain definite regulations, and I think that is the attitude that I had, although I was not at that time a member of the Board of Health. Doctor Black was the acting president and I was on a leave of absence. That was the resolution that was presented by Doctor Arnold, I think. I think that is my attitude at the present time.

Mr. Schaefer: Now, if the Master please, I move to strike that answer as not responsive, and I would like to have the question read to Doctor Bundesen.

Mr. Garipey: I submit that the answer is responsive.

The Master: Let the reporter read the question and also the answer.

(The record was read by the reporter as above recorded.)

Mr. Schaefer: The question deals as of February 2nd.

1978 The Master: February 2nd, yes. I think the answer may be stricken. Now read the question again.

(The question was again read by the reporter.)

Mr. Schaefer: Q. I am asking for your opinion, Doctor.

The Master: Q. At that time did you have any opinion on that question?

A. As to the use of what?

Q. Paper containers.

Mr. Garipey: Of the single service container.

The Witness: A. My opinion has been consistently the same all the time, that paper containers, if they could be used with safety, I would have no objection to. Does that answer your question?

Mr. Schaefer: Q. What in your opinion are the factors that go to determine whether or not paper containers can be used with safety?

A. Those opinions expressed in the meeting of the Board of Health, which covered that point very well, which have just been read, of this May meeting; that the use of paper containers—

Mr. Schaefer: I will have to move to strike that, Master.

The Master: Yes.

Mr. Schaefer: Doctor, please pay attention to the 1979 question, when it is read.

The Master: Read the question.

(Mr. Schaefer's last question was read by the reporter as above recorded.)

The Witness: A. Those factors that were adopted—those factors as outlined by the requirements of the United States Public Health Service.

Mr. Schaefer: Q. And what are those, doctor?

A. I am not so very familiar with many of them. That the material should be non-porous, that there should be certain bacterial—whether there should be a certain temperature for the heating of the material that goes into the making up of the container.

Q. Any others, doctor?

A. I don't pay much attention to the details of those things. There is a large number of them, but I would not know what they were.

Q. When you say non-porous, with respect to paper containers, Doctor, do you mean non-absorbent?

A. Yes, non-absorbent.

Q. In your opinion should the use of paper containers which are absorbent be permitted for the distribution of fresh fluid milk in the city of Chicago?

A. I would be guided a good deal by the regulations of the United States Public Health Service on that, but 1980 I don't think that the United States Public Health Service permits them to be non-absorbent.

Q. Do you mean that last statement? Will you read that, Mr. Reporter?

The Master: There are two negatives there. Read the answer.

(The witness' last answer was read by the reporter as above recorded.)

The Witness: I do not think that the United States Public Health Service standards permit a container which is absorbent.

Mr. Schaefer: Mr. Golding, mark this Defendant's Exhibit 29 for identification, please.

(The document referred to was thereupon marked by the reporter Defendant's Exhibit 29, for identification.)

Mr. Schaefer: Q. Doctor, I show you a document which has been marked Defendants' Exhibit 29, for identification, which purports to be a resolution adopted by the Board of

Health of the City of Chicago. Will you examine that document and tell me what it is, please?

A. That is a resolution presented by me to the Board of Health, which makes the ordinance of the City of Chicago conform to the Government's ordinance.

1981 Q. I would suggest that you do not state what it does. That is really a matter for the lawyers to determine.

Mr. Gariepy: I suggest, counsel, that the document speaks for itself.

Mr. Schaefer: Q. Is that a resolution or a copy of a resolution which was adopted by the Board of Health?

A. Yes, sir. That is the resolution that I presented to the Board of Health, and it was adopted by the Board of Health.

Q. And on what date was that?

A. I think it was October 16th. It was last Monday.

Q. Now, attached to the resolution are copies of the suggested changes prepared by the United States Public Health Service; is that correct?

A. Yes, sir.

The Master: Suggested changes in what?

Mr. Schaefer: In the United States Public Health Service standard milk ordinance and code.

The Witness: They are changes in the Chicago code to conform to the United States Public Health Service code.

Mr. Schaefer: Q. Doctor, will you examine that document, the last six pages of that document, and tell me wherein the suggestions there made differ from the 1982 suggestions made by the United States Public Health Service Advisory Board in June of 1939, if at all?

A: I am not familiar enough to testify wherein they differ with the suggestions made by the Advisory Board, particularly in this Section 10 of the Code. One important point here, and, as I read it at the time, the one that changed it, to live up to our ordinance, is this statement in which it says "Milk and milk products sold and distributed in containers in quantities of less than one gallon shall be delivered in standard milk bottles," which is in the old ordinance, and this is in the new ordinance now; "Or in single service containers."

Q. Yes.

A. That is in this one here, "in single service containers."

Q. Yes.

A. Then—

Mr. Schaefer: Is there a question pending, Mr. Reporter?

Mr. Gariepy: He is answering your question.

Mr. Schaefer: Will you read my question?

(Mr. Schaefer's last question was read as follows:

"Doctor, will you examine that document, the last six pages of that document, and tell me wherein the suggestions there made differ from the suggestions made by the United States Public Health Service Advisory Board in June of 1939, if at all?")

Mr. Schaefer: Q. Can you point out any particulars in which they differ, doctor?

A. Yes, sir. You mean, where the suggestions or where the recommendations of the Advisory Board differ?

Q. Yes, sir. From that material there.

A. Yes, sir.

The Master: What is the significance of this now?

Mr. Schaefer: I will withdraw that question.

Q. Doctor, at that meeting of the Board of Health on October 16th, 1939, who was present at the time of the presentation of this resolution?

Mr. Gariepy: I am going to object to that. The minutes of the Board of Health meeting at that time by the secretary of the Board are the best evidence of who was there and what took place, and not this doctor's idea about it.

The Master: Does the resolution say who was present?

Mr. Schaefer: No, sir.

Mr. Gariepy: They have got minutes.

The Master: Oh, I will let him state who was present. That is, the members of the Board.

The Witness: There were others present besides members of the Board.

The Master: Sir?

The Witness: There were others present besides the members of the Board, and the minutes would not show that.

The Master: Q. What members of the Board were present at this meeting?

A. All of the members of the Board. There were Doctor Black, Mr. Harry Reynolds, Doctor Francis Dulak and Doctor Lloyd Arnold, and myself. Those are the five members of the Board.

Q. Who else was present, Doctor?

A. Well, the acting—the man who was acting in the capacity of assistant to the president while the assistant to

the president was not there. That was Mr. Krueger and Mr. Guerin, and a number of newspaper boys. I don't recall whether anybody else was present. There were present during part of the meeting some milk dealers who were called in for certain infractions of the rules.

Q. Were they present at the time this resolution was considered?

A. No, sir.

1985 Q. They were not?

A. No, sir. You mean the newspaper boys, yes, sir. The newspaper boys were, but not the milk dealers that were called in.

Q. Those dairy people were not there?

A. No, sir. As I recall, there was no one else. Oh, yes, the secretary of the meeting, who takes down the minutes of all of these meetings.

Q. Who was that, doctor?

A. Madeline Wisa. I think that is everybody that was present.

Q. Doctor, you omitted one person who was there?

A. Have I? Oh, yes, and a very important person. The Assistant Corporation Counsel, Mr. Horan. I beg your pardon, Mr. Horan. I should not have done that.

Q. Now, doctor, is it the usual practice for the newspaper reporters to attend meetings of the Board?

Mr. Gariepy: I object to that.

The Master: Objection sustained.

Mr. Schaefer: Q. What significance, if any, Doctor, do you attach to the following statement contained in the recently adopted regulations of the United States Public Health Service pertaining to paper milk containers, and I am quoting from their regulations:

1986 "The porous condition of paraffin containers now available and the sloughing of particles of paraffin into the product are undesirable."

A. I think any statements that are made by the United States Public Health Service are of great significance and would have a great weight in influencing me.

Mr. Schaefer: Cross-examine.

Cross-Examination by Mr. Gariepy.

Q. Doctor Bundesen, have you been subpoenaed here today?

A. Yes, sir.

Q. And by whom were you subpoenaed?

Mr. Schaefer: It could be the President of the United States.

Mr. Gariepy: For the record I would like to show this. This is unusual. It comes in after the defendant has closed his case.

The Master: Go ahead and ask the question.

Mr. Gariepy: Q. Who subpoenaed you, Doctor?

A. All I know is that the boy came in and said he was from the Corporation Counsel's office of Chicago.

1987 Mr. Gariepy: Q. The Corporation Counsel is representing all of the defendants, including you and the Board of Health, in this litigation?

A. I don't think I am in this litigation. I don't think I am a part of this litigation.

Q. You are a member of the Board of Health?

A. Yes.

Q. And you are president at this time?

A. Yes.

Q. At the time this lawsuit was filed, on February 2nd, 1939, Doctor Robert Black occupied the office you occupy now as president of the Board of Health?

A. Yes.

Q. And you were on leave of absence at that time?

A. Yes.

Q. And you have supplanted him since?

A. Yes.

Q. And he is still a member of the Board of Health?

A. Yes, sir, as far as I know.

Q. Doctor, who dictates the policies with regard to the public health, of the Chicago Board of Health, in matters taking action to protect public health? Is there anybody that dictates policies or with whom the Board confers before taking any action to protect public health?

1988 Mr. Schaefer: That is objected to.

The Master: Objection sustained.

Mr. Gariepy: Q. Doctor, was the action taken by you and by the members of the Board of Health on October 16th, 1939, a free and voluntary action, that was taken at your suggestion?

A. I could not answer for the other members of the Board of Health. I can answer for myself. As far as I am concerned, it was—you say free and voluntary?

Q. Yes.

A. Yes, it was free and voluntary.

Q. Did you call the other members in to that session of the 16th?

A. I always do, yes, sir. That was a special meeting that we held.

Q. And was this matter of the resolution of October 16th, 1935, which counsel showed to you, discussed with the members of the Board of Health at that time?

A. Oh, yes, sir. You mean before it was passed?

Q. Yes.

A. Yes, sir.

Q. And Doctor Arnold was present at that time?

A. Yes.

Q. And is that the same Doctor Arnold who on May 15th, 1939, offered a resolution to the Board of Health concerning the use of single service containers in the city of Chicago?

Mr. Schaefer: That is objected to.

Mr. Gariepy: You opened the door on the May 15th meeting.

Mr. Schaefer: No, I did not.

The Master: I will sustain the objection. That was an unresponsive answer which that question adverted to.

Mr. Gariepy: All right, but he went into the actions of the Board of Health.

Q. What other action did the Board of Health take previous to October 16th, 1939 with regard to the recognition of the use of single service containers in the city of Chicago for the sale of fresh fluid milk?

A. Previous to when?

Q. October 16th, 1939. That was last Monday.

A. The Board of Health passed a resolution some time in May, 1939, regarding paper containers.

Q. If I asked you to name the date and suggested the 15th, would you say that was right or wrong?

Mr. Schaefer: That is objected to.

The Master: Is there any question about that?

Mr. Schaefer: I don't know what date that was.

Mr. Gariepy: Do you accept it?

1990 Mr. Schaefer: I don't know when the action was taken or if any action was taken.

Mr. Gariepy: Let us bring in the records then, counsel.

The Master: Let us not have all this colloquy. Proceed.

Mr. Gariepy: Mr. Golding, will you mark this Plaintiff's Exhibit 88?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit 88, for identification.)

Mr. Gariepy: Q. Doctor, I show you a four page statement which I have had marked Plaintiff's Exhibit 88, and ask you to look over those four pages before I ask you another question with regard to the contents of those sheets.

A. Yes, sir.

Q. Do you recall the action taken, described in these four sheets, Plaintiff's Exhibit 88, on or about May 15th, 1939, by the Board of Health of the City of Chicago?

A. I was not a member of the Board of Health on May 15th, so I don't know what action was taken, except what I saw afterwards in the minutes of the Board of Health. I was not connected actively with the Board of Health on May 15th of this year, when that action was taken.

Q. Do you know that the action was taken, as described on Plaintiff's Exhibit 88 here, by the Board of Health, as shown in the minutes, on May 15th?

A. Yes, sir. The records of the Board of Health show that that action was taken.

Q. And was that resolution and that action taken on motion and suggestion of Doctor Lloyd Arnold?

A. The records would have to show that. My understanding is that it was, but I just got that from reading it over. I was not present at the meeting. You would have to consult the records.

Q. What activity or part did Mr. Charles Horan, the Assistant Corporation Counsel, who was present, take in the meeting held on October 16th, 1939?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Did you take any counsel with Mr. Horan with regard to this resolution that was passed on the 16th, that counsel showed to you, marked Defendants' Exhibit No. 29?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: You opened the door when you admitted who was present, let him testify who was present; when I objected on the ground that the minutes were the best evidence of who was present.

The Master: I just let him go into who was present, and that is all.

Mr. Gariépy: Q. Did Doctor Lloyd Arnold vote at that meeting on October 16th, 1939?

A. No, he did not.

Q. He did not vote?

A. He did not vote. Each member was polled.

Q. And he was silent?

A. Each member voted yes, except Doctor Arnold, and for the purposes of the record he said he was passing his vote and not voting.

Q. I see.

A. But the president did vote.

Q. Now, counsel asked you concerning the significance of the last sheet of the United States Public Health Service suggestions, that part reading that "The porous condition of paraffin containers now available and the sloughing off of particles of paraffin into the product are undesirable." Have you ever heard of any health problem being created by reason of the sloughing off of particles of paraffin?

A. I don't even know that paraffin sloughs off.

1993 Q. Have you ever heard of any child or any aged person, Doctor, becoming sick or ill in any form, shape or manner with disease, by reason of drinking milk that had paraffin in it?

A. I don't practice medicine, so I would not know.

Q. No, I say, have you ever heard of such a thing occurring?

A. It is not a reportable condition to the Board of Health, so there would be no way that I could find out. Did you mean in the literature or in conversation with people?

Q. That is right. In literature, in articles, by referring to or by talking with other members of the Board of Health, where paper containers are used, have you ever heard of any such thing?

A. I do not recall a case.

Q. Have you ever heard of any baby becoming sick by reason of spicules of paraffin getting into the milk?

A. No. But that does not mean that there might not be something in the literature. I have never heard of it.

Q. You have never heard of it?

A. No, sir.

Q. Now, you said that you turned over a lot of this

1994 technical work in the matter of the single service container inquiry to others in the department. Who in the department did you refer to, Doctor?

A. Well, essentially Mr. Krueger, who is the chief sanitary officer in charge of all the milk activities, and Mr. Guerin, who is the Chief of the Bureau of Dairy Products of the City of Chicago. They are the two technical men who handle the matters of milk essentially.

Q. After you referred back to them concerning this application for the use of single service containers in the city, did you ever receive from either of these men a report concerning the advisability or the inadvisability of using these containers?

A. Both of these men were present and aided in the drawing up of this resolution.

Q. Of October 16th, 1939, is that the resolution you refer to?

Mr. Schaefer: I object to that on the ground it is incompetent testimony.

Mr. Gariepy: I will get to that in a minute. You may strike that.

The Master: The answer may be stricken.

Mr. Gariepy: Doctor, will you listen to the question I gave you a minute ago. Read it, Mr. Golding, please.
1995 (Mr. Gariepy's question, referred to, was read as follows: "After you referred back to them concerning this application for the use of single service containers in the city did you ever receive from either of these men a report concerning the advisability or inadvisability of using these containers?")

The Witness: A. Yes, sir.

Mr. Gariepy: Q. When?

A. Just before the resolution of October 16th was drawn up.

Q. In 1939?

A. Yes, sir.

Q. And in what form was that report from Mr. Guerin or Paul F. Kreuger, verbal or writing?

Mr. Schaefer: If the Master please, we are going far afield.

Mr. Gariepy: You opened the door.

The Master: I am just wondering what all this testimony is about.

Mr. Gariepy: I don't know what counsel is attempting to prove here.

The Master: But you sat there and did not object. He brought in a witness who does not profess to be an expert on the subject of bacteriology, and presented that 1996 question. You did not object. You let him introduce the evidence.

Mr. Gariepy: No. He asked him a lot of questions concerning absorption and paraffin.

The Master: And you did not object.

Mr. Gariepy: No. Let him do it. But if he asked him about those things I have a right to cross examine about the testimony he gave on direct.

The Master: I will let him answer whether he received a report.

Q. Was it in writing or orally?

Mr. Gariepy: Q. From Mr. Guerin or Paul Krueger.

A. The substance of it is in the resolution.

Q. Of October 16th, 1939?

A. Yes, sir. We discussed it and wrote up the resolution.

Q. Counsel asked you concerning the absorption of milk in a paper container. Do you know of any paper container that is being used as of this day that does not prevent any absorption of milk?

Mr. Schaefer: Does not what?

Mr. Gariepy: Q. Does not permit any absorption of milk.

A. I know nothing of the merits of any container at the present time, personally.

1997 Q. When did you first become informed, Doctor, that the United States Public Health Service had taken action with regard to the recognition of the single service container being permitted and recommended for use in cities?

A. When I saw an article in the newspaper to the effect that evidence had been submitted at this trial showing that single service containers or that the ordinance had been changed to permit the use of single service containers.

Q. And did you see the original action or the report from the United States Public Health Service at or about that time or immediately after you read this article in the paper?

A. You mean, the letters from the United States Public Health Service?

Q. Yes.

A. Yes, sir.

Mr. Gariepy: Mr. Golding, will you mark this Plaintiff's Exhibit 89?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit 89 for identification.)

Mr. Gariepy: Q. Will you look at Plaintiff's Exhibit 89, Doctor, and tell me whether that is what you saw then?

1998 A. Yes, sir.

Q. Had you previously to that time written any letter to the United States Public Health Service making inquiries concerning their action on this subject of single service containers?

A. Such a letter was written under my signature and while I was out of town, yes, sir.

Q. And did you receive the reply when it came in?

A. No, sir.

Q. What happened to the reply to your letter when it came to your attention or came to the office there, rather?

A. The letter was written at the instigation of the Assistant Corporation Counsel, by Mr. Krueger, during my absence. When the letter came in Mr. Krueger went to my secretary and asked for the letter, saying that the Assistant Corporation Counsel was anxious to have the letter to present at a hearing, and if the letter had not come in they should wire for it. My secretary informed him that the letter had just come in and, as per my instructions, to forthwith turn over all correspondence to the Assistant Corporation Counsel regarding matters of milk at once, that letter was turned over to the Assistant Corporation Counsel for him to handle, because he was

1999 the originating source of that letter. That was about October 9th or 10th, I should say, somewhere in the neighborhood of October 9th or 10th, when the letter came in.

Q. And is that the reason for the conclusion that you did not learn of this action of the United States Public Health Service until you read it in the papers?

A. By this action you refer to that part of the ordinance which refers to the amendment permitting single service containers?

Q. Right, Doctor.

A. There are two sections. Yes, sir. That is not the answer to the second part of it.

Q. Has there been any effort made to you by anyone to rescind the action taken October 16th, 1939, with regard to suggestions for amendment of the ordinance?

A. No, sir.

Q. And that resolution and those suggestions are still in full force and effect in the Board of Health records, October 16th, 1939?

A. Subject to the approval of the Board of Health, yes.

Q. I don't understand. Subject to the approval of the Board of Health? I am referring in my question to the action taken by the Board of Health October 2000 16th, 1939.

A. Yes.

Q. That stands in full force and effect now, that resolution?

A. I had in mind this: We have a meeting and then we have minutes, and then the Board of the Board of Health at its next meeting approves as correct those minutes, if they conform to the ideas of the other members of the Board. It is correct as far as I am concerned, but the minutes would not be up for approval until the next meeting, and always those minutes are not approved.

Q. And subject to whatever suggestions or corrections in the minutes that may exist, they stand as approved?

A. If there are no corrections, yes, sir.

Q. Did Doctor Arnold make any other comment at this meeting of October 16th, 1939, other than passing his vote, saying he was not voting on it?

Mr. Schaefer: That is objected to.

The Master: Objection sustained.

Mr. Gariepy: Q. Do you know, Doctor, whether or not the model code and ordinance as suggested by the United States Public Health Service in the month of January, 1939 had any reference to the use of single service containers at that time?

2001 A. I did not get that.

Mr. Gariepy: Read it, Mr. Golding.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. I do not recall any model code and ordinance being submitted in January, 1939.

Mr. Gariepy: Q. No, as it existed, the ordinance and

code of the United States Public Health Service, in January, 1939, do you know whether or not there was any reference in that code and ordinance to the use of the single service container?

A. There were no definite standards regarding the use and manufacture of single service containers. There were no definite standards regarding the use and manufacture of single service containers at any time, until just within the past few weeks, when the Board of Health adopted this resolution. Previous to that time there had been no regulations by the United States Public Health Service concerning the use and manufacture of single service containers, and that is why I had not presented any standards to the Board of Health, until the Public Health Service had approved of it.

Q. Have you at any time since February 2, 1939 changed your mind with reference to the use of single service containers for the sale of fresh fluid milk in the city?

A. No, sir. My attitude today is just as it has been consistently. I have never given permission for the use of single service containers. I don't think the Board of Health now has given permission for the use of single service containers and I have never been opposed to the use of single service containers, if they could be so made that fresh fluid milk could safely be served therefrom and that the standards came from the United States Public Health Service.

Q. As long as they complied with the standards and suggestions of that Public Health Service they were O. K. with you?

A. Yes, sir.

Q. Is it customary for an Assistant Corporation Counsel to attend all meetings of the Board of Health, Doctor?

A. Yes. I cannot recall a meeting where there has not been some Assistant Corporation Counsel present. Usually we have two.

Q. Is it customary for the Board of Health of the City of Chicago, of which you are president, previous to taking any action in matters of public health to discuss the matter with the Corporation Counsel?

Mr. Schaefer: That is objected to.

The Master: I will sustain the objection.

Mr. Gariepy: Q. Do you know anything about the present action of the Board of Health concerning bringing the Mayor Kelly Milk Ordinance up to date?

The Master: Read that question.

(Mr. Gariepy's last question was read by the reporter as above recorded.)

The Witness: A. Yes, sir.

The Master: That is a pretty broad question.

Mr. Gariepy: That is what Doctor Arnold testified they were going to do and he was entering upon the work of doing it.

Q. What action has been taken, that you know of, other than the May 15th, 1939 and October 16th, 1939, actions?

Mr. Schaefer: That is objected to, if the Master please. Any change in the ordinances of the city of Chicago is a change that is made by the City Council, by the adoption of an ordinance.

Mr. Gariepy: Why do you bring in then the October 16th meeting and subpoena the doctor in here? What difference does it make what the Board of Health does if 2004 the City Council passes on it? Why bring in this doctor and take his testimony?

The Master: I will sustain the objection.

Mr. Gariepy: I don't know why counsel brought him in.

The Master: But you did not object to it.

Mr. Gariepy: I don't understand. We are going into the same thing now that counsel asked about.

The Master: Go ahead now. I sustained the objection.

Mr. Gariepy: Q. Do you know who is working upon this matter of revising the Mayor Kelly Milk Ordinance to bring it up to date?

Mr. Schaefer: That is objected to.

The Master: Sustained.

Mr. Gariepy: Q. Have you had any meeting, Doctor, of the members of the Board of Health after the October 16th, 1939 meeting?

A. No, sir.

Q. Do you know why you were subpoenaed to testify here today, Doctor?

Mr. Schaefer: Objection.

The Witness: A. I have absolutely no idea.

The Master: Objection sustained.

Mr. Schaefer: Was there an answer to that question?

Mr. Gariepy: He says he has no idea.

That is all, Doctor.

The Master: Do you want the answer stricken?

2005 Mr. Schaefer: Yes, I do.

The Master: The answer may be stricken.

Mr. Schaefer: I would like to have this document marked Defendants' Exhibit No. 30 for identification.

(The document referred to was thereupon marked by the reporter Defendants' Exhibit 30, for identification.)

Redirect Examination by Mr. Schaefer.

Q. Doctor, will you look at the document which has been marked Defendants' Exhibit 30, for identification, and tell me whose signature that is?

A. That is the signature of the Surgeon-General of the United States Public Health Service, Thomas Parran.

Q. And will you tell the Master what the document is?

Mr. Gariepy: I object. It speaks for itself.

The Master: Well, he can tell us. Go ahead.

The Witness: A. This is a report that was sent—this is an abstract of a report that was sent to the Surgeon-General by the Advisory Board, making suggestions to the Surgeon-General, in an advisory way, of certain 2006 changes that should be made in the standard ordinance.

Mr. Schaefer: Q. And the document is a letter from the Surgeon-General addressed to you?

A. Yes, under date of June 27th, and received July 5th, showing what the advisory—

Mr. Schaefer: 1939?

A. 1939, yes.

Mr. Schaefer: That is all, Doctor.

Mr. Gariepy: That is all, Doctor.

(Witness excused.)

Mr. Schaefer: Doctor Black.

UNITED STATES CIRCUIT COURT OF APPEALS

For the Seventh Circuit.

I, Kenneth J. Carrick, Clerk of the United States Circuit Court of Appeals for the Seventh Circuit, do hereby certify that the foregoing printed pages contain a true copy of Volume 2 of the printed record, printed under my supervision, and filed on the twenty-first day of February, 1941, which, together with Volumes 1 and 3, constitutes the record in the following entitled cause:

Cause No. 7502.

Fieldcrest Dairies (Inc.),
Plaintiff-Appellee,
vs.

City of Chicago (a Municipal Corporation), Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,
Defendants-Appellants,

as the same remains upon the files and records of the United States Circuit Court of Appeals for the Seventh Circuit.

In Testimony Whereof I hereunto subscribe my name and affix the seal of said United States Circuit Court of Appeals for the Seventh Circuit, at the City of Chicago, this 5th day of September, A. D. 1941.

(Seal) Kenneth J. Carrick,
*Clerk of the United States Circuit Court
of Appeals for the Seventh Circuit.*